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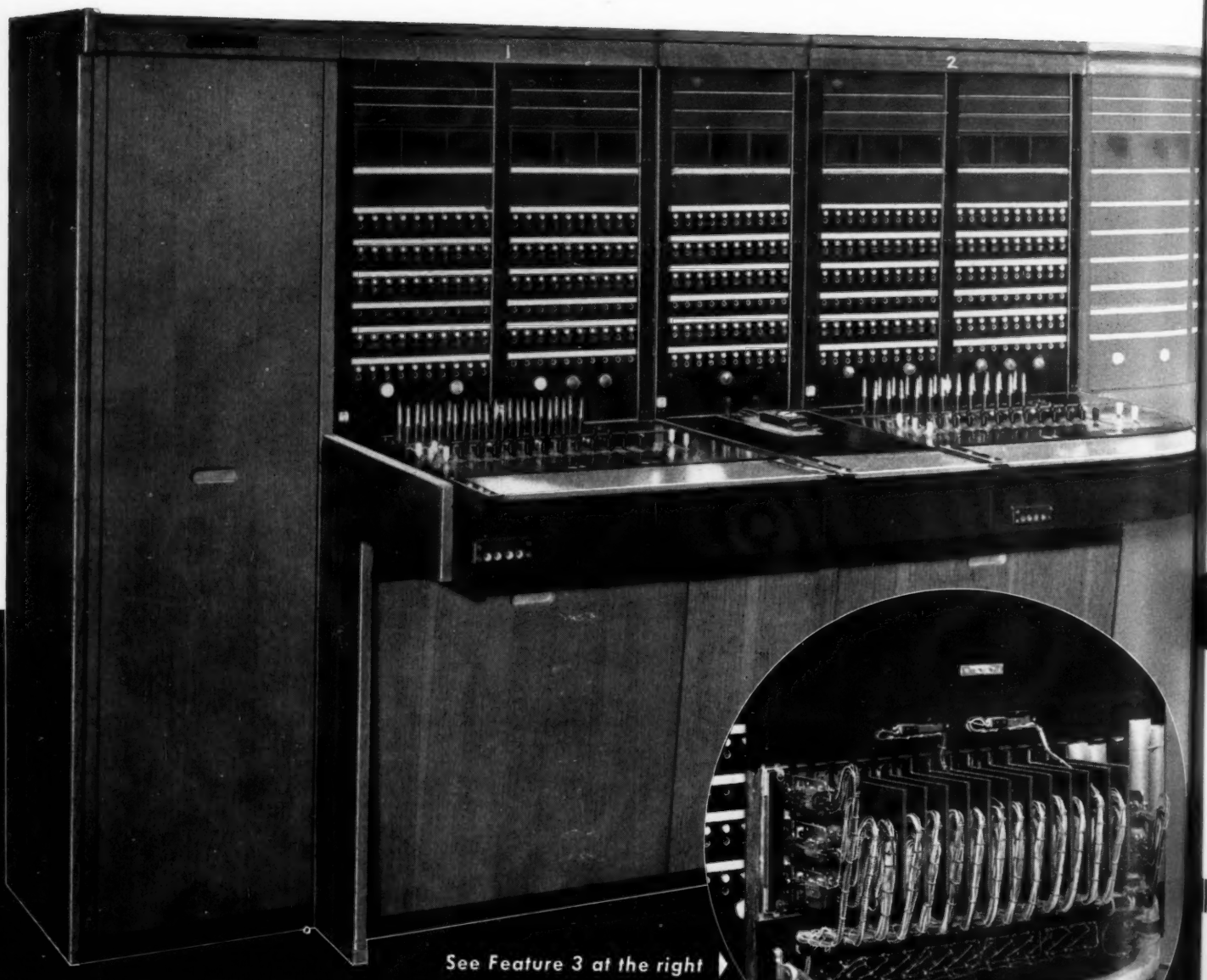

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FLASHES AND PLUGS

IT'S STILL A MATTER OF OPINION. A University of Florida professor thinks a natural Southern voice sounds better on the radio than a flat Western tone or Northern tone.

But the drawled "kaint," "you all," and "honey-chile" slangs are definitely taboo, according to Dr. Lester Hale, director of the speech and hearing clinic in the university's speech department.

Dr. Hale says the standard Southern speech is the most musical of any regional dialect, but you have to combine good diction with it.

He cites a Floridian, Red Barber, network sports announcer, as an example of the true Southern voice.

Dr. Hale believes that radio, in an attempt to create a standard American dialect, is developing a new hybrid speech that is not "American" at all.

• • •

UPSETTING THE UPSETTERS. Stu Holcomb, Purdue University football coach, and Andy Gustafson, the Miami, Fla., touchdown tutor, formerly were assistants to Red Blaik at Army but Holcomb must be a bit sorry he called Gustafson to congratulate him when he was named coach at Miami.

"Thanks," Gustafson replied, "but I've got an opening on the schedule. How about filling it with Purdue?"

The game was scheduled—and Gustafson's Miami lads upset Holcomb's conquerors of Notre Dame. . . .

• • •

THE ODDS WERE HEAVY. A Milwaukee, Wis., woman who had an accident immediately telephoned her doctor, whose number ended with the digits 4442. Next she called her attorney. *He* was at 4443, same exchange. Then, she called her insurance company's doctor and found *him* at 4444, again the same exchange. The odds against picking three Milwaukee telephone numbers at random and in sequence are about 4,911,526,198,260,000 to one. That fact should salve her feelings.

• • •

A MATTER OF INTERPRETATION. Chance Vought Aircraft's employment office in Dallas, Tex., under steady pressure from the hundreds of job seekers who flock to the company's plant, answers thousands of questions daily, some of them unusual.

A company interviewer recently answered the telephone to find one of the applicants for a job on the other end.

"I'm filling out this heah fohm you-all sent me," the voice drawled. "Now, down heah wheah it say 'telephone,' does that mean I phones you, or you phones me?"

• • •

DIVINE COMMUNICATION. A small boy had watched a telephone repair man climb a pole, adjust a telephone headset and try to make connection with the switchboard. There was some trouble obtaining the connection. The youngster listened a few minutes then rushed into the house, exclaiming, "Mother, come here quick. There's a man up on a telephone pole talking to heaven."

"What makes you think he's talking to heaven?" asked his mother.

" 'Cause he hollered, 'Hello! hello! hello! Good Lord, what's the matter up there, can't anyone hear?' "

Telephony
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IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH
WASHINGTON EDITOR

Election shows prevailing dissatisfaction with administration . . . Senate report on Bell system labor-management relations expected . . . Businessmen's committee formed to fight excess profits tax.

Election Shows Unsettled Opinion

FOR businessmen who have long held the opinion that the Truman administration has not been too well-informed about what it takes to keep our enterprise system in healthy condition, the over-all results of the recent election probably were encouraging. But wishful thinking is so strongly tempting to all of us, that it would be easy to overestimate the significance of the voting on Nov. 7.

Granted that Republicans made substantial gains at the expense of some of the more radical anti-business elements of the Democratic party. The fact still is that the Democrats remain in control of both branches of Congress. They managed to elect a majority of the members of the House of Representatives—slim though that majority may be.

What would have happened if the American people had been voting for President on Nov. 7? On the basis of the Democratic majority returned to the House of Representatives, one could make a good argument that a Democratic President would have been elected. If you look at it from a Republican point of view — with Republicans making decisive sweeps in state-wide elections in Illinois, Ohio, California, Pennsylvania and New York — the election of a Republican President would be indicated. The truth probably is somewhere in the middle—as usual. In other words, the result would have been pretty close, just as it was in 1948.

This is all by way of suggesting that the Nov. 7 election does not indicate any conclusive shift of public sentiment toward the right, or assure a more conservative brand of government policy in the future. It does represent a definite switch away from the more extreme left. The most that can be said is that the public mind is unsettled, by and large. People are not satisfied with the way the Truman administration is performing. But they have not demonstrated any clear-cut conviction that the Republicans could do much better, if they had control of the federal government.

So, Where Do We Go From Here?

The above general comment suggests that the reasons for election shifts here and there on Nov. 7, were particularized. They did not follow any national pattern. Voters in Ohio re-elected Senator Taft in the face of heavy and skillfully organized labor union politics. So, it could be said—in Ohio—that the people have repudiated labor union politics, as such.

But the people of Maryland surprisingly unseated the veteran and rather conservative Senator Tydings, for an entirely different reason. Tydings' defeat can be laid largely to his association with Truman administration efforts to conceal certain Communistic affiliation of government employes, past and present. Somewhat along the same line was the reason for the victory of Senator-elect Nixon of California, over the Democratic lady Representative, Helen Gahagan Douglas.

Six months ago it was fashionable in Washington to sneer at the vigorous efforts of zealous anti-Communists, such as Senator McCarthy (R.) of Wisconsin, and McCarran (D.) of Nevada, to track down fellow travelers on the government payroll. But, today, the critics of Senator McCarthy have been decimated in Congress. A Baltimore newspaper editorial humorously described the earlier criticism of Senator McCarthy's personal campaign against Maryland's Senator Tydings: "Everybody laughed when Joe McCarthy sat down to play the piano." They are not laughing now.

One could go on from state to state, showing different reasons for campaign success or such gains as were made on Nov. 7. In New York, the record of Governor Dewey for good administration was undoubtedly the main factor in his victory—even in the face of some embarrassing Republican campaign fumbling. In Pennsylvania the liberal and internationally minded Governor Duff ousted the middle-of-the-road Democratic Senator Myers on campaign issues that were quite different from the line followed in Ohio, Maryland, New York, etc. Majority Leader Lucas of Illinois seems to have been a victim of fumbles by his own party in Chicago. The alert Senator-elect Dirksen pounced on the ball with telling results.

But the businessman will want to know what this is all going to mean—in terms of legislation in Congress and administration policy affecting business in the future. The answer is far from clear or definite. President Truman is still in the White House. His attitude on issues affecting the business community has not changed noticeably.

What has changed is the general climate in Congress. Congress may not be able to pass or repeal laws along conservative lines in the face of Presidential veto, but it will be able to use its power over appropriations in such a way as to force some concession from the administration. If that sounds like government by stalemate, that is about as good a description of what to expect of the next Congress as any which might be expressed at this writing.

A Sterile Lame Duck Session

The immediate prospect is a "lame duck" session (of the 81st Congress) which will not produce the legislation President Truman hopes to push through the 81st Congress before the 82nd Congress convenes. Republicans and Democrats are likely to stall on swift enactment of excess profits taxes, or other controversial legislation, before the end of the year. Even in the matter of urgent or deficiency ap-

propriations, the Truman administration will find resistance in the "lame duck" session, slated to be called this month. It will be a season of horse trading.

Over the long range, the prospect in the 82nd Congress shapes up something like this — with respect to the legislation of particular interest to public utilities:

(1) Poor prospect for new socialistic public projects, particularly "valley authorities" — such as the Tennessee Valley Authority.

(2) The Rural Electrification Administration is going to find it a lot harder to get new loan money out of Congress —in the grand manner to which REA has become accustomed over the last few years. One reason for this, of course, will be military necessity, which will make Congress frown on federal lending and spending for non-military purposes. But there are other questions which some more or less friendly critics of REA in Congress will want to bring up involving REA loan policy. So, don't be surprised if something like a mild congressional investigation of REA pops up in the 82nd Congress.

(3) The next Congress is likely to exercise tighter controls on so-called "defense agencies" (for purposes of issuing priorities for scarce materials, etc.). The Truman idea of having his Secretaries of Commerce, Interior, Agriculture and Labor handle the new defense control set-up in piecemeal fashion, may have to be junked (on congressional insistence) in favor of a single special control agency, something like the old War Production Board of World War II.

(4) What will follow in the wake of the strong anti-Communist and anti-Socialist sentiment, manifested in many of the election campaigns? There is quite likely to be some over-all adverse effect on administration left-wing policies, in general, such as removing labor union controls, enacting socialized medicine, federal aid to education and adopting various anti-business measures. For Independent telephone companies, the bugaboo of a dollar or $1.25 an hour minimum wage is not as terrifying as it was a month ago.

(5) Generally speaking, we can look for less congressional "production," in terms of the number of new laws enacted, repealed, or amended, but more congressional "double checking." The relation between the President and the new Congress will be one of caution and watchfulness, and probably not as harmonious as was the President's relationship with the 81st Congress, which is saying little enough. New and higher taxes are to be expected, perhaps including an excess profits tax early next year. But the public utilities may get a special break, even here. All told, Congress will write its own bills and the President will think carefully before acting upon them.

REA ALLOCATES $168,000 TO WISCONSIN COMPANY

The U. S. Department of Agriculture announced Nov. 6 that loan funds of $168,000 were allocated by the Rural Electrification Administration during the week of Oct. 30 to Nov. 3 for expansion and improvement of rural telephone service in Wisconsin.

On Nov. 2 the REA allocated $168,000 for the Marquette & Adams County Telephone Co., Oxford, Wis. The present plant operates 147 miles of line serving 499 rural subscribers. Funds to be made available from this allocation will be used to finance the construction of 12 miles of new line, the rebuilding of 140 miles of existing line, and the installation of dial equipment throughout the system.

When rehabilitation and construction are completed, the system will serve 622 subscribers over 152 miles of line, the REA states.

Senate Report on Telephone Bargaining

Regardless of what may come out of the current Bell system strike, the telephone industry can still watch for the Senate Labor and Public Welfare subcommittee to give the labor unions an "assist"—in the form of a report on labor-management relations with the Bell system. As a matter of fact there was some expectation that the Senate committee, headed by Chairman Elbert Thomas (D., Utah), would release such a report on its recent hearings before the telephone strike broke. But for some reason or another—possibly a slip up in the full committee—the subcommittee report, covering the question of whether telephone employe unions should be permitted to deal on an industry-wide basis with management of the Bell system, failed to make its appearance before the walkout.

Of course the fact that the chairman of the Senate Labor Committee has since become a "lame duck," along with two other members of the committee, Senators Donnell (R., Mo.) and Pepper (D., Fla.), would undoubtedly take some of the shine off any report that might be brought out. Four other members of the committee were successful in their bids for re-election: Aikin (R., Vt.); Hill (D., Ala.); Morse (R., Ore.), and Taft (R., Ohio).

The three election "casualties" in the Senate committee, noted above, do not change the character of this group to such an extent as to make it hostile to labor legislation, by any means. With the defeat of Senator Thomas, the new chairman of the committee is likely to be Senator Murray (D., Mont.), who was also chairman of the subcommittee on telephone-management labor relations. In addition to the Senators named above, the following strongly pro-union Senators will remain on the committee — Douglas (D., Ill.); Humphrey (D., Minn.), and Neely (D,, W. Va.).

It is to be expected, therefore, that the Senate Labor Committee will continue to be about the one bright spot for legislation favoring organized labor demands in the 82nd Congress.

But speaking of Congress as a whole, it seems very unlikely that any final action will be taken on any measure to permit industry-wide bargaining in the telephone business—if such a measure is pressed at the "lame duck" session. The long-range prospects in the 82nd Congress are not very bright, either. It seems to be another case of atmospheric change, resulting from organized labor's disappointing showing at the polls.

Rally Against Excess Profits Tax

A committee of more than a hundred business executives last week launched an all-out fight against excess profits tax of any kind—for public utilities or any other business. This committee called for "sound alternative corporate taxation" during defense emergency. It is founded by Beardsley Ruml, who announced the committee's formation with a statement, in part, as follows:

"The excess profits tax is a very harmful and dangerous tax, in spite of its superficial plausibility. It is inequitable and inflationary. The committee is clear that it wants defense without inflation, that it expects business to bear its fair share of defense costs . . . by sound methods of corporate taxation."

The vice chairman of this committee is Harold V. Bozell, president of General Telephone Corp., and, until last month, president of the United States Independent Telephone Association. Another member of the committee is Robert C. Tait, president of Stromberg-Carlson Co., Rochester, N. Y.

(Please turn to page 36)

DROP WIRE USAGE TRENDS

By F. E. BEHM
Member
USITA Plant Committee

In his address made at the Plant Conference of the recent convention of the United States Independent Telephone Association, Mr. Behm gives some timely advice on drop wire construction and maintenance.

DROP wires are expensive. This small part of the plant, which extends the subscriber's circuit from the open wire or cable to the subscriber's building, amounts to less than 3.5 per cent of the total plant value of the Lincoln (Neb.) Telephone & Telegraph Co., (Mr. Behm is general plant superintendent of the Lincoln company), but accounts for 10 per cent of the maintenance account. The high cost of drop wire maintenance could be attributed to a great extent to the fact that the wire must be located on right-of-way, over which the telephone company has little control. It is difficult, and in many cases, impossible, to provide adequate clearance around trees, buildings, and other wires. Other plant can be planned and engineered very carefully, but drop wire installations must be improvised to fit local conditions. This, together with frequent subscriber location and building changes, accounts for short drop wire life.

Organization and Development

The first drops were little more than extensions of the line wire to the subscriber's building, attached by means of knobs and sometimes ordinary oak pole brackets. From the point of attachment, to the telephone, the circuit was carried over inside wire, and later bridle wire. Many old-timers will remember cutting slack in these bare wire drops to take care of a subscriber's complaint that the wire hummed so loudly he couldn't sleep. The bare iron wires were replaced by drops of weatherproofed iron wire. With replacement of open wire with cable came the twisted pair drop wires. First, No. 14-gauge copper; then, No. 17 iron; and later the No. 17 bronze and copper-steel.

This development in drop wire covered a period of 40 years. The impelling reasons for the changes were service improvement and cost reduction. The open wire drops frequently became crossed. The weatherproofing on iron wire proved to be an undependable insulation. The advantage of rubber for insulation soon became apparent. Natural rubber exposed to sunlight soon deteriorated. A cotton braid with a weatherproof saturant was designed to protect the rubber. It was found that conductors thus insulated and weatherproofed could be twisted together. Thus, twisted pair drop wire with its many advantages was made available. About 20 years ago manufacturers found that some saving could be made by arranging the insulated conductors in parallel and weaving a cotton braid over them.

Braid Covered Wire

The parallel wire reduced the cost by eliminating one braiding operation. The first wire covering was braided No. 30 thread. Later, for use where tree trimming was objectionable, a cotton braid of Hawser cord was developed. It was found that this heavier braid carried much more asphalt, which preserved the cotton for a much longer period. It was observed that the life of the wire was determined to a great extent by the length of time the braid protected the rubber against the sunshine. This led to using heavier, No. 20, thread for no other purpose than providing carrier for more asphalt. This trend continued until about 10 years ago, when considerable wire with No. 10 thread was manufactured. This increase in the weight of the saturated covering doubled the life of drop wire.

F. E. BEHM

Attaching Devices and Methods

With the adoption of twisted pair drop wire came the development of methods of fastening the wire to hold it securely in place. The problem was to prevent abnormal strains and wear at points of attachment. Complicated ties were developed for this purpose. These ties required considerable time and ingenuity for application. The use of parallel wire further complicated the tie problem. Much trouble was traced to defective ties.

Manufacturers provided the solution by developing easily and quickly installed drop wire clamps. These are now available in several makes, each having its advantages for certain types of installation. These clamps, with hooks for attaching them to building walls, poles, and arms, together with angle screws, house brackets, and porcelain cleats, have entirely eliminated the drop wire tie. They have reduced the labor for drop installation or removal to a fraction of former costs. These new attaching devices, properly installed, are almost trouble free under the wide variety of conditions encountered.

Polyethylene Covering

Critical shortages of cotton and rubber during the war resulted in some important substitutions in material used in drop wire manufacture. The principal substitutes were Polyethylene and synthetic rubber.

Polyethylene is an extremely tough wax-like hydrocarbon thermoplastic, which has excellent characteristics for insulating and weatherproofing drop wires. The material is pliable under a wide range of temperatures and can be extruded over the wire in much the same manner as rubber. It resists abrasion of the type to which drop wires are subjected. It is an inert material and will not readily deteriorate through exposure to the elements.

With these somewhat unusual characteristics, Polyethylene serves as a substitute for both the rubber insulation and the weatherproofed cotton jacket. It is suitable for both parallel and twisted pair drop wire construction. The drop wire, especially, the parallel, has the advantage of reduced weight and dimensions, resulting in less strain on the attachments and less congestion in cable terminals. Use of single material for both weatherproofing and insulation has the further advantage of avoiding exposure of sensitive materials when the conductors are divided.

Supporting clamps required only minor changes to make them suitable for this new wire. Because of the toughness of this insulation, it was difficult to divide the conductors for attachments to open wire lines. This fault was entirely overcome by development of slitters for separating the conductors. It has been observed that the conductor adhesion to the Polyethylene is not as good as to rubber. Because of stiffness of Polyethylene, however, no trouble has resulted from this source. Polyethylene has a tendency to cold flow under prolonged excessive pressure against sharp objects, making it necessary to avoid such conditions in installation. Recent improvements in design of pressure-type supporting clamps removed any possibility of cold flow trouble in the clamp.

Neoprene and Synthetic Rubber Covering

The synthetic rubbers, developed during the war as a substitute for drop wire covering, are GR-S or Buna-S rubber for insulation, and neoprene for the outside jacket. The electrical and physical properties of GR-S are slightly better than those of natural rubber. Because it is cheaper, this synthetic rubber is used extensively for insulating wires not exposed to the weather.

Neoprene is one of the oldest synthetic rubbers. It was first developed by Du Pont in 1932 and used for oil and gasoline hose. It was later developed into a very tough abrasion resistant material, which remained pliable over a wide temperature range. Its physical characteristics made it very desirable for tire treads. Its first use, as a covering for wire, was on Spiral-4 for the Signal Corps. . . .

Following the war, Neoprene became available for drop wire covering. It could be extruded and vulcanized much the same as rubber. While not as good an insulator as rubber or GR-S synthetic rubber, its resistance to oil, sunlight, fire, and weather, together with its temperature stability, makes it an ideal jacket for insulated wires.

Neoprene drop wire with GR-S rubber insulation is manufactured in both twisted pair and parallel. . . . These (parallel) are available in two types of construction—reinforced and non-reinforced. The reinforced construction provides an open textile braid over the rubber insulation. This reinforcement provides protection against impact damage and is recommended for drop wires exposed to extreme abrasion or other abnormal physical hazards. The non-reinforced wire does not have the protection of the textile braid, but has the advantage of reduced weight and size.

Twisted pair Neoprene wire has the usual advantage of permitting conductor separation without exposing the rubber insulation to the destructive effects of sunlight. Its additional cost can be justified where installation requires substantial conductor separation, such as in making connections to open wire lines. The parallel wire has the advantage of less weight and bulk. It is not as expensive as twisted pair. Some contend that it has greater resistance to tree or other similar abrasion. The disadvantage of exposing the rubber insulation, when necessary, to separate the conductors can be overcome by taping the separated wires. The difficulty in dividing the conductors of parallel wire has been entirely overcome by slitters heretofore mentioned. Parallel wire requires more care than twisted pair in paying out by hand. Use of suitable drop wire reels entirely overcomes this objection.

Recent Design Change

Recently, manufacturers have made available a parallel wire of a design that provides for complete enclosure with Neoprene of each rubber insulated conductor. This is accomplished by holding the conductors apart, while placing the Neoprene jacket. The design results in grooves on each side of the parallel wire. These grooves serve as a guide for slitting tools. Some manufacturers have deepened these grooves to the extent that the conductors may be torn apart after starting with a cutting tool at the end. The connecting fin in this construction must be thin enough to tear more easily than the Neoprene sidewall; otherwise the separation would result in tearing out a portion of the sidewall and exposing the rubber insulation.

This type of construction appears to be an improvement. It provides the advantage of complete enclosure of the rubber insulation when the conductors are separated. The new construction results in some reduction of the rubber insulation thickness. This reduced insulation thickness may be somewhat offset by changing the conductor from No. 17 to No. 18-gauge. The new design in parallel provides a wire of weight and bulk somewhat comparable to the old parallel wire with the weatherproofed braid of No. 30 thread. This change in weight and bulk is desirable for reasons heretofore stated.

Conductor

The No. 17-gauge bronze conductor used in drop wires has a breaking strength of 170 pounds. Wire of copper-steel in No. 18-gauge has the same breaking strength. Considerable interest has been shown in the reduced conductor size. No. 18-gauge bronze has a breaking strength of 140 pounds. Some have contended that a drop wire strength of 280 pounds is adequate for most localities. This contention is advanced by those who prefer bronze over copper-steel conductor. It is understood that substantial quantities of No. 18-gauge drop wire are being used.

War Surplus Wire

Much surplus government wire has been available during recent years. The principal items of such wire are single and paired field wire used by the Signal Corps, a paired parallel underground or under water wire used by the Navy, spiral-4 cable and WC-534 five-pair cable, both used by the Signal Corps. The single and paired field wire has a stranded conductor, a light rubber insulation and a weatherproofed textile braid cover. This wire was made for temporary outside use. It could not be expected to last sufficiently long to justify its use for permanent drop wire installations. The wire might serve fairly well for interior use; however it was manufactured as an expendable item and its use in other than temporary work should be rather carefully considered.

The parallel wire from navy surplus was intended for submerged or buried use. Since tensile strength was of minor importance, the conductors were of soft copper. Most of the wire is covered with an insulating material compounded for its resistance to moisture absorption. This insulation would deteriorate rapidly, when exposed to sunshine. Its use should be confined to the purpose for which the wire was intended.

Spiral-4 cable was manufactured for semi-permanent army installation. The cable contains four rubber insulated No. 18-gauge stranded conductors rather carefully spaced to maintain desirable electrical characteristics. The core is wrapped with a shield of metalized paper, over which is a heavy manilla paper wrapping. Over this paper covered core is woven an open steel wire braid, to provide tensile strength and to keep strain from the

(Please turn to page 2)

IMPROVEMENT IN POLE LINE

And Conduit Construction

By A. A. WILSON
Member
USITA Plant Committee

This is another paper presented at the Plant Conference of the recent convention of the United States Independent Telephone Association in Chicago, which should be helpful to Independent telephone companies.

DURING fairly recent years improvements have been made in pole line and conduit construction and, while some of the items which will be discussed may not seem to be very recent developments, it is planned to outline some present methods on these subjects with the idea in mind that the information might not have previously become available to a rather large group.

With the development of high strength wire for use in rural areas resulting in long span construction, certain changes have been required in the design of the pole line, including pole attachments and guying. In the matter of underground conduit, the basic design has been subject to very little change through the years, but certain changes and improvements have been made in the design and construction of underground conduit.

Pole Lines

Pole Treatment. Broadly speaking there are two kinds of poles in general use at the present time. These are creosoted pine poles and butt treated cedar poles. No attempt will be made to discuss the relative merits of these poles, but a method will be outlined which is being used by a member of utility companies for prolonging the life of the cedar poles after they have been in place for a number of years. This method involves the use of a wood preserving chemical and a saturated felt bandage, similar to a roofing felt, applied at the ground line of the cedar poles. There are some wood preserving companies which contract for the treatment of poles with their product and with their own workmen. It is also possible for utility companies to purchase the materials only and perform the work with their own forces. The treatment procedure is simple and can easily be performed by temporary labor operating under one man who is generally familiar with pole work. Specific instructions are furnished by the supplier of the treating materials.

As a general guide, poles with no original treatment should be treated immediately. Poles which had butt dipped treatment only should be treated five years after installation. Poles with butt dipped incised treatment should be treated 18 years after installation. The method of treating the poles is to dig out around the pole to a depth of about 17 ins. and carefully wire brush and clean away all decayed wood. General decay is removed with a sharpened spade, finishing with a hatchet to pencil off the overhang. Sound the pole for heart rot and bore if necessary. The boring should be filled with a treated plug. The circumference of the pole at the ground line is then measured and checked against minimum requirements. If the pole is found sound and of sufficient size, the treatment is applied. The chemical is applied to the pole from three inches above the ground to 15 ins. below. A felt bandage, similar to a roofing felt, is then wrapped around the pole over the chemical treatment and the hole is refilled. The purpose of this bandage is to prevent the chemicals leaching into the surrounding ground.

It is estimated that inspection crews should average from 10 to 12 inspected poles per man per day under normal conditions. Poles which are treated require about 50 cents worth of materials. Poles which are inspected and found unfit for treatment require no material and about 85 per cent of the labor time.

Holes should not be opened around the pole and backfilled without treating the pole unless the pole is found unsuitable for treatment and will be replaced. Aerating the soil causes rapid acceleration of decay and shortens the pole life. Prods or picks should not be used in inspecting the poles.

The effective service life of this ground line treatment varies according to climatic and soil conditions, species of time and original treatment. Generally, the retreatment programs are started between seven to 10 years after the preceding program.

Digging Machines for Placing Poles. Practically all telephone companies in recent years have discovered the advantage of the proper tools and equipment in constructing pole lines. The development of the comparatively low cost digging machines for digging pole holes is one of the most important items. There are a number of these machines on the market with different methods of operation, but they probably all approach the same goal as far as the final results are concerned.

Construction Trucks. Construction trucks provided with winch and derricks also have been found to be a necessity where a large amount of pole line construction is required. Most construction trucks are provided with the derrick mounted at the rear of the truck. However, some companies have found that the derrick mounted on the front of the truck has proved more satisfactory for their purposes. This derrick is mounted on a special framework in place of the front bumper. The winch is located in the usual place behind the truck cab.

There are many advantages of having the pole derrick mounted on the front of the truck instead of on the rear. The driver of the truck has much

better vision of the operation in progress and can, therefore, maneuver the truck and place the derrick in its proper position in a faster and much safer manner. On country roads the rear wheels of the truck are always on solid footing. This type of derrick is an advantage in cities when it is necessary to place 45 and 50 ft. jointly owned poles where traffic is a problem and where there are existing circuits to avoid in placing new poles. With new men on a construction crew it is also an advantage to have all of the action immediately in front of the operator of the truck.

In placing aerial cable with this type truck the front sheave bar is used and the winch cable is pulled over the top of the cab. By using the rear sheave bar it is possible to pull stumps over the rear of the body. Underground cable can also be pulled in as easily with this type truck as with the rear mounted type.

Pole Line Design and Joint Poles with Power Companies. In designing pole lines, various factors, of course, must be taken into consideration. For pole lines jointly owned with light and power companies in cities, the details concerning the size and type of pole to be used will depend upon the local conditions. In general, however, poles for this purpose are usually 35 ft. Class 5 poles. The kind of timber and treatment depend upon the practices of the telephone company and power company involved. Span lengths for this type of construction ordinarily average not more than 150 ft. In some cases, it may be possible to use smaller poles depending upon the space requirements of each company and upon the local requirements for ground line clearance.

Toll Pole Line. The design of toll pole lines also depends upon various conditions and no attempt will be made at this time to set forth specific requirements which would cover these conditions. The type of toll circuits carried together with the future requirements and the ice loading requirements all enter into the problem and it is necessary to plan each line as an individual case.

Rural Lines. In designing rural pole lines for long span construction the following general plan is submitted as a guide. This plan is based on construction in the *heavy storm loading area.* For lines constructed in the *medium and light storm loading areas* the span lengths can be increased accordingly.

Minimum length of poles to be 20 ft. with class of pole determined by number of wires to be supported as follows:

No. of Wires	*Span Length*	*Class of Pole*
2	350 ft.	10
4	350 ft.	10
6	350 ft.	9
8	350 ft.	7
10	350 ft.	7
11-20	250 ft.	6
21-30	250 ft.	4

All dead-end and guyed poles to be the next class of pole heavier than the straight line poles but not less than Class 7 poles.

At all highway crossings, span lengths to be not greater than 150 ft.

At railroad crossings, span lengths will be determined from the detail plans, which will be made on the basis of the local requirements.

For leads of two wires, place wood pole brackets. Place top bracket strap on all brackets except at corners where the wires pull toward the pole; in this case place bottom bracket strap. Use ¼ in. x 2½ in. galvanized lag screws for attaching bracket straps. Place double brackets at corners.

For dead-ending two wire leads use insulated clevises attached directly to the pole with ⅜ in. x 5½ in. (or longer) galvanized carriage bolts or machine bolts, each equipped with a ⅞ in. x 1⅜ in. round washer at the threaded end. Space the clevises 12 ins. apart vertically, the upper bracket to be not less than six inches from the top of the pole.

Use two-pin cross-arms in transposing two-wire bracket leads. Place cross-arm on side of pole and equip with two No. 56 transposition insulators. A cross-arm brace is not required. The dimensions of this crossarm are 3¼ in. x 4¼ in. x 16½ in.

Use four-pin cross-arms on leads where the requirements will not exceed four wires. Use one 20-in. cross-arm brace. The dimensions of this cross-arm are 3¼ in. x 4¼ in. x 3'4½ in.

Use one four-pin cross-arm for dead-ending a four-wire lead. Equip this crossarm with four insulated clevises for dead-ending the wires. Place this cross-arm on the back of the pole away from the last span. Use two 20-in. cross-arm braces.

Use six-pin cross-arms on leads where the requirements will not exceed six wires. Use two 20-in. cross-arm braces. The dimensions of this cross-arm are 3¼ in. x 4¼ in. x 6 ft.

Use ten-pin cross-arms on leads of eight and 10 wires. Use two 30-in. cross-arm braces. The dimensions of this cross-arm are 3¼ in. x 4¼ in. x 10 ft.

Use DE crossarms for dead-ending six to 10 wires. The dimensions of this cross-arm are 4½ in. (front to back) x 4¼ in. (top to bottom) x 6 ft. long. There are no pin holes provided in this cross-arm, but holes are provided to accommodate ⅜ in. bolts for attaching 10 insulated clevises to the face of the cross-arm. A hole for a ⅝ in. through bolt is also provided in the middle of the cross-arm. The ⅜ inch bolt holes are spaced on six-inch centers with nine-inch spacing from the middle bolt hole and three-inch end spacing. Use ⅜ in. x 5½ in. carriage bolts equipped with a ⅞ in. x 1 in. round washer at the threaded end for attaching the insulated clevises to the cross-arm. Place this cross-arm on the back of the pole away from the last span. Use two 30-in. cross-arm braces.

Place double cross-arms at corner poles where the "pull' is 30 ft. or greater.

The "eye bolt" method of attaching guys to poles is being used successfully by a number of companies. Angle thimble eye bolts with curved washers on each side of the pole are being used in some cases for this purpose. In other cases, a special thimble eye arrangement is used with regular cross-arm bolts to provide the same results. In this case no washer is required on the down guy side of the pole as this has been provided for in the design of this attachment.

Underground Conduit

Transportation Conduit. Special types of clay conduit are being used by a number of telephone companies to meet special conditions. Transposition clay conduit is a multiple conduit with right or left hand twist. Transposition conduit is used to change the formation of conduit runs, such as changing from a formation where the conduit units are being laid on edge to one in which they will lay flat or vice versa. This type of conduit is also used where it is necessary to change the depth or width of the conduit formation to avoid obstructions in the trench. It can also be used in changing the duct formation at the entrances to manholes and central office cable vaults in order to facilitate setting up and racking cables.

Expanded Web Conduit. Expanded web clay conduit is a multiple conduit in which the webs at one end of the unit are of standard thickness and at the other end one or more of the webs are of somewhat greater than double thickness. This conduit is intended for use in joining one unit of multiple conduit to two or more smaller units. There are conditions where it is necessary to splay ducts for conduit entrances to manholes or central office buildings or to divide a duct run with

(Please turn to page 30)

THE OPERATOR'S Corner

BY
MAYME WORKMAN
TRAFFIC
EDITOR

EVERY year since those early Puritans first paused in their labors to give thanks unto God for His blessings, Americans have celebrated in the month of November the feast of Thanksgiving. This year, it has a special significance.

Never before in the history of our country have our rights and privileges as Americans been so forcefully impressed upon us. Never before have our liberties been more precious, more sacred, more to be cherished.

Giving thanks on Thanksgiving Day is not enough. We must resolve to dedicate ourselves to the protection of our heritage, and to use it to the elevation of American standards. And as we give thanks for American ideals, for American liberties, and for American opportunities, let us not forget our responsibility to our work, and to those we work for.

The American way of life is not something to be taken for granted, neither is it a symbol of perfection and security. Every sanctity can be lost, either by neglect or by the spreading tyranny of totalitarianism.

"It can happen here," is no idle fancy. It could be a stern and frightful reality, if ever Communism or any other form of statism gained control of our political and economic life. Thanksgiving is a reminder of this danger to American security and peace of the whole world.

Our blessings are many on this Thanksgiving Day. To the Pilgrim mothers who prepared the first Thanksgiving dinner, a modern store would be a revelation. Foods from all over the world—cooking aids of which they never dreamed—linens and china and glassware, the likes of which kings of their day could not afford! And to the Pilgrim fathers that vast financial structure that has made this progress possible—factories, railroads, mines, mills, and telephone networks—would prove equally astounding!

In addition to the material things of life, which add so much to the pleasure and comfort of every day living, there is a spiritual aspect that should not be overlooked, and for which we should be eternally grateful.

If we were to say a prayer on this Thanksgiving Day of 1950, it could well be something like this:

"Lord, teach us to appreciate our blessings. Keep us from callous self-conceit that takes Thy benefactions all for granted. Keep us from greedy discontent—forever seeking and unsatisfied.

"Help us to realize how blessed we are as citizens of a nation where men hunger neither for food nor for freedom.

"Keep us from smugness and complacent pride. Teach us we are as other men—no better or more favored in Thy sight than those in other lands, ill-clothed and hungry.

"Show us the way of love and humbleness. Teach us to help and share. Guide us in ways of tolerance. Help us to understand while others blame; to offer friendship, not indifference.

"Help us to know possessions do not make a life. Teach us to see beyond the goods, machines and merchandise we seek. Help us to learn the lessons of the heart, to recognize the values of the soul.

"Teach us, who take Thy bounty, how to give. And keep us from self-satisfied content that speaks in lazy platitudes and hoards all good things for itself.

"God, help us work and serve and give to justify the blessings that we own."

May our Thanksgiving Day's observance include an inventory of personal family and national blessings, together with a reminder that blessings without a sense of obligation and responsibility are likely to disappear sooner or later.

Meanwhile, let us rejoice together, thanking God and remembering that all good things have their origin in Him. Then we shall truly have a happy Thanksgiving Day.

Traffic Questions

(1) On an information call, if a customer indicates initially that he wishes the telephone numbers of more than one subscriber, how should the Information operator proceed?

(2) If the customer desires the telephone numbers of five subscribers, should the Information operator furnish the numbers?

(3) If the Information operator receives a request to check the class of service from another operator, how should she proceed?

(4) When the Information operator has a request for information involving an emergency call, what action should be taken?

(5) If the Information operator is in doubt as to whether a call for the police or fire department, a doctor or a hospital, is an emergency, how should she proceed?

Answers are presented on page 38.

V V

OBITUARY

R. B. FEGAN, 73, general manager and secretary-treasurer of the Junction City (Kan.) Telephone Co., died in Junction City Nov. 8.

He was born May 15, 1877, in Hoboken, N. J., and started in telephone work at Rochester, N. Y., in 1898. He worked for several years in Rochester, Buffalo, Ithaca, Albion, and other New York cities when the telephone industry was in its infancy.

In 1909 he became promotion and traffic manager for the old Home Telephone & Telegraph Co., Abilene. In 1910 he purchased the small Junction City Telephone Co. which then had 600 installations.

He is survived by his widow, three children and seven grandchildren. The children, Robert, Thomas, and Mrs. George Grammer, all are residents of Junction City. A brother, E. A. Fegan, lives in Waukegan, Ill.

• • •

As this issue went to press, TELEPHONY was notified of the death of STUART B. WHITE, 58, member of the Michigan Public Service Commission, in an automobile accident Nov. 10.

• • •

>> Dog lovers in South Africa are having their names, addresses and telephone numbers tattooed inside their dogs' ears, to make the pets "thief-proof."

Courts and Commissions

Arlington, Neb., Company Granted Rate Increase

The Nebraska Railway Commission has granted the application of the Arlington Telephone Co. for an increased schedule of rates.

Monthly charges on 40 business stations are increased from $3.00 to $4.50; on 24 individual residences from $2.00 to $3.00; on 128, from $1.75 to $2.50; and on 336 rural stations from $1.75 to $3.50.

Twenty-five cents will be added if bills are not fully paid by the 15th of the current month. A rate of 50 cents additional is allowed if subscribers desire common battery service through an adaptor coil for individual line service. Established also are new rates of $3.75 for two-party business, $2.00 for four-party residence, and $3.50 for rural business. All lines are metallic.

Under the new rates the company will have a 5.96 per cent return on an adjusted rate base of $36,517. While revenues will rise from $18,170 to $23,354, operating expenses will increase from $14,083 to $18,877. Of this amount, $4,007 represents higher wage payments.

The company serves 528 subscribers.

V V

Affirms Rate Recommendations For Oklahoma Exchanges

The Oklahoma Corporation Commission, on Oct. 27, issued an order sustaining Referee Paul Reed's recommendations of increased rates for the Western Light & Telephone Co., Inc., Kansas City, Kan., at Canton, Covington, Crescent, Custer City, Garber, Greenfield, Hunter, Kingfisher, Marshall, Minco, Orlando, Pond Creek, Thomas, Seiling and Watonga, Okla., to be effective the first billing date following the effective date of the order.

New rates prescribed by the referee for Okarche do not go into effect until after the present telephone switchboard has been replaced with another "capable of giving good and adequate service to the Okarche telephone area."

Increased rates granted at Crescent are conditional upon the company carrying out its agreement to install approximately 5,700 feet of aerial cable to serve the area east of the central office; to rehabilitate approximately 19 blocks of pole line and install 404 pairs of cable to the main distributing frame, all to be done by Mar. 1, 1951.

The commission also ordered that approximately 10,800 feet of aerial cable and approximately 700 feet of underground cable be added by the company to serve the southwest section of Kingfisher, including substantial improvements to the switchboard and other inside plant equipment. The commission stipulated that if these improvements are not in place by June 1, 1951, the rates at Kingfisher will "automatically revert to those in effect prior to the issuance of this order."

V V

Court Approves Receiver For Indiana Company

The Fountain Circuit Court of Indiana recently held a hearing on a complaint and application for receiver for the Indiana Western Telephone Corp., Attica, Ind., in the cause of Indiana Public Service Commission vs. Indiana Western Telephone Corp. The court found that a receiver should be appointed to take charge of, receive and hold the property. Carl Songer was appointed receiver, it is reported.

V V

Incorporation

The Inyan Kara Telephone Co., Sundance, Wyo., has been incorporated for $50,000 with A. L. Watson as agent. The officers of the new company are: President, Mr. Watson, and secretary-treasurer, Jay Mayberry. The above officers and the following compose the board of directors: Pete Kudlock and Maurice Lappe.

V V

Vote to Sell Company

Stockholders of the Mason (Ill.) Telephone Co. have voted to sell the Mason company to the Farina Telephone Co., it is reported.

Proposed Stock and Bond Issue Would Finance Improvements

The Durham Telephone Co. Nov. 2 asked the North Carolina Utilities Commission for permission to issue $200,000 worth of bonds and $50,000 worth of stock to pay debts and finance planned improvements.

The bonds, the proceeds of which would be applied to repaying the company's treasury for bondable net additions, would mature Oct. 1, 1975, and carry 3⅛ per cent interest.

The stock, the proceeds of which would be used for working capital, would be issued without par value but would be sold at $50 a share to an affiliated company.

V V

Two S. D. Companies Get Rate Increases

Two Independent telephone companies on Nov. 2 were granted rate increases by the South Dakota Public Utilities Commission.

The Moody Telephone Cooperative, Flandreau, was granted a $3.00 rate for multi-party rural metallic service.

The Farmers Mutual Telephone Co., Sinai, was authorized to charge the following rates:

One-party business	$2.75
Party business	2.50
One-party residence	2.50
Party residence	2.25
Rural, metallic	2.75
Rural, grounded	2.50

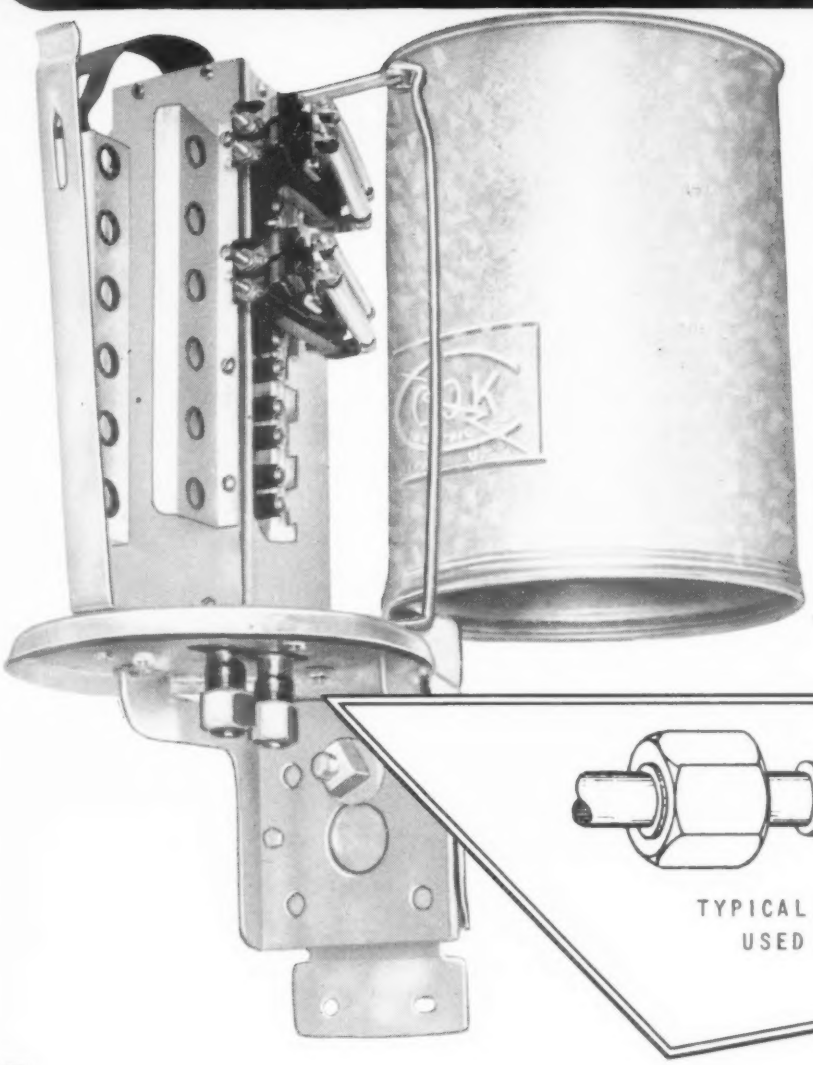
A discount of 25 cents will be allowed from the monthly charges if paid on or before the 15th of the month in which it is due.

V V

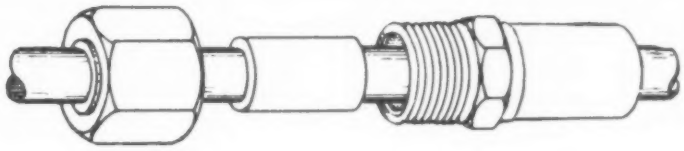
N. C. Stock Issue Approved

The North Carolina Utilities Commission Nov. 1 approved an application of the Carolina Telephone & Telegraph Co., Tarboro, to issue 20,825 shares of stock to raise money to retire $3,100,000 in bank notes due and to finance improvements and expenses. The stock will be offered stockholders of the company at $100 a share on the basis of one share of new stock for each five shares of old stock.

Simplified Adaptation



The Cook S-20 Pole Cable Terminal equipped with IN-OUT COMPRESSION COUPLINGS for the NEW PLASTIC COVERED CABLE



TYPICAL COMPRESSION COUPLING USED ON COOK TERMINALS.

THE Cook S-20 protected cable terminal now is supplied with compression couplings as an optional feature. This provides an ideal terminating point for the new plastic covered cable. The terminal is provided with two couplings and the cable can be looped through the terminal without requiring a stub splice, thereby simplifying the line construction and providing a moisture-proof, light-proof chamber for the Cable Conductors.

The H-20-7 protector mounts supplied with the S-20 terminals are especially designed for discharging heavy power cross surges and are ideal for joint pole occupancy.

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COOK ELECTRIC Company

Telephone Protection & Distribution Engineering Since 1897

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basis of one share of new stock for each five shares of old stock.

V V

Recommends Higher Rates for Arcadia, Okla., Company

Higher rates have been recommended for the Arcadia Telephone Co., by B. Richardson, Oklahoma Corporation Commission engineer, with the exception of a request by the company for an increase in switching rates (TELEPHONY, Oct. 28, p. 32). The recommended monthly rates are:

One-party, business	$3.50
One-party, residence	2.50
Two-party, residence	2.00
Multi-party, residence	2.00
Rural switching	.75

V V

Company Liquidated; Franchise Open to Other N. C. Firms

The North Carolina Utilities Commission Oct. 25 gave the Milton-Semora Telephone Co. permission to go out of business, the action coming after G. D. Brooks, owner, told the commission that he no longer is able to operate the company and has not been able to sell it.

In its order granting the company the right to cease operations, the commission said it operates only 16 telephones and all of these have been out of order for several months.

In declaring the company out of business the commission declared the franchise for service in the company's area open to any telephone company ready to serve it.

V V

Illinois Commercial Files Stock Registration Statement

The Illinois Commercial Telephone Co. has filed with the Securities & Exchange Commission a registration statement covering 21,000 shares of $5.50 cumulative preferred stock. Subject to clearance by the SEC, it is expected that the shares will be offered to the public about the middle of next month.

The company, a subsidiary of General Telephone Corp., also has made arrangements to sell to a group of institutions $2,000,000 principal amount of 3% first mortgage bonds, due 1980. Gross proceeds from these two new issues will be used to retire loans issued under a credit agreement and incurred in connection with new construction.

V V

Gets Rate Increase

The South Dakota Public Utilities Commission on Oct. 30 approved an increase in rates for the Belvidere Telephone Exchange. The new rates are: One-party business, $3.00, and multiparty residence, $2.00.

V V

Court Denies Rehearing of Ohio Bell Rate Case

The Ohio Supreme Court on Oct. 18 denied a rehearing to six of the state's largest cities appealing an Ohio Public Utilities Commission order permitting the Ohio Bell Telephone Co. to increase its rates by nearly $9,000,000 a year.

The court previously affirmed the commission's order. The cities requesting the rehearing are Cleveland, Columbus, Dayton, Toledo, Akron and Canton.

V V

Rates Increased for Three Illinois Exchanges

The Illinois Commerce Commission has authorized a rate increase of 25 cents a month to the Southeast Missouri Telephone Co., Cape Girardeau, Mo., for its three Illinois exchanges—Olive Branch, Tamms and Thebes.

V V

Illinois Bell Seeks 10-Cent Paystation Rate

The Illinois Bell Telephone Co. on Nov. 3 petitioned the Illinois Commerce Commission for an increase in its rates on public paystation telephones from five cents to 10 cents for each local call. The petition also asked for higher installation and move charges.

The rate change, if granted, would not affect business and home subscribers who have been paying an average of a little more than seven cents for each local call. Company spokesmen said the increase would tend to wipe out the inequity between coin telephone charges and monthly message rate charges. The latter have increased 26 per cent since 1946 while the nickel rate has been unchanged for decades.

There are about 48,000 coin telephones in Chicago and 17,000 downstate in the Illinois Bell system, about 3 per cent of the total number of telephones in service.

G. K. McCorkle, president of Illinois Bell, estimated the company would net, after taxes and other expenses, about $2.5 million annually on the gross increase of $5.6 million.

It was said that even if the petition is granted promptly, the changes required in the paystation instruments could not be completed before next January.

The petition also asks for an upward revision in the charges for about 20,000 coin operated business telephones in Chicago. It would cut from 96 to 84 the number of calls for the $8.40 monthly minimum on the one-party telephones of this type and additional calls would be charged at the rate of eight cents, rather than five cents.

V V

Normal Service Reported Despite Strike in 43 States

Despite spasmodic picketing of telephone exchanges in 43 states, officials of the American Telephone & Telegraph Co. in New York City said Nov. 12 that normal service prevailed at its 14 traffic centers in the United States.

Another government mediation attempt brought no results, and Walter A. Maggiolo, a federal mediator, issued an appeal in New York Nov. 12 to the CIO Communication Workers of America, the union representing 33,000 strikers, and to the Western Electric Co., equipment subsidiary of the Bell system, to settle their wage dispute in the "public interest."

The strikers, installers of telephone equipment, are reported to have demanded a 15-cent hourly wage increase after rejecting an 11¼ cent offer. Their walkout Nov. 9 has brought idleness to 87,000 other CIO union telephone company employes who refused to cross picket lines.

John A. Maloney, a spokesman for Illinois Bell, said sporadic picketing of that company's exchanges was intended to harass the company by requiring it to move substitute operators frequently from exchange to exchange. But, said Mr. Maloney, supervisory employes maintained service.

V V

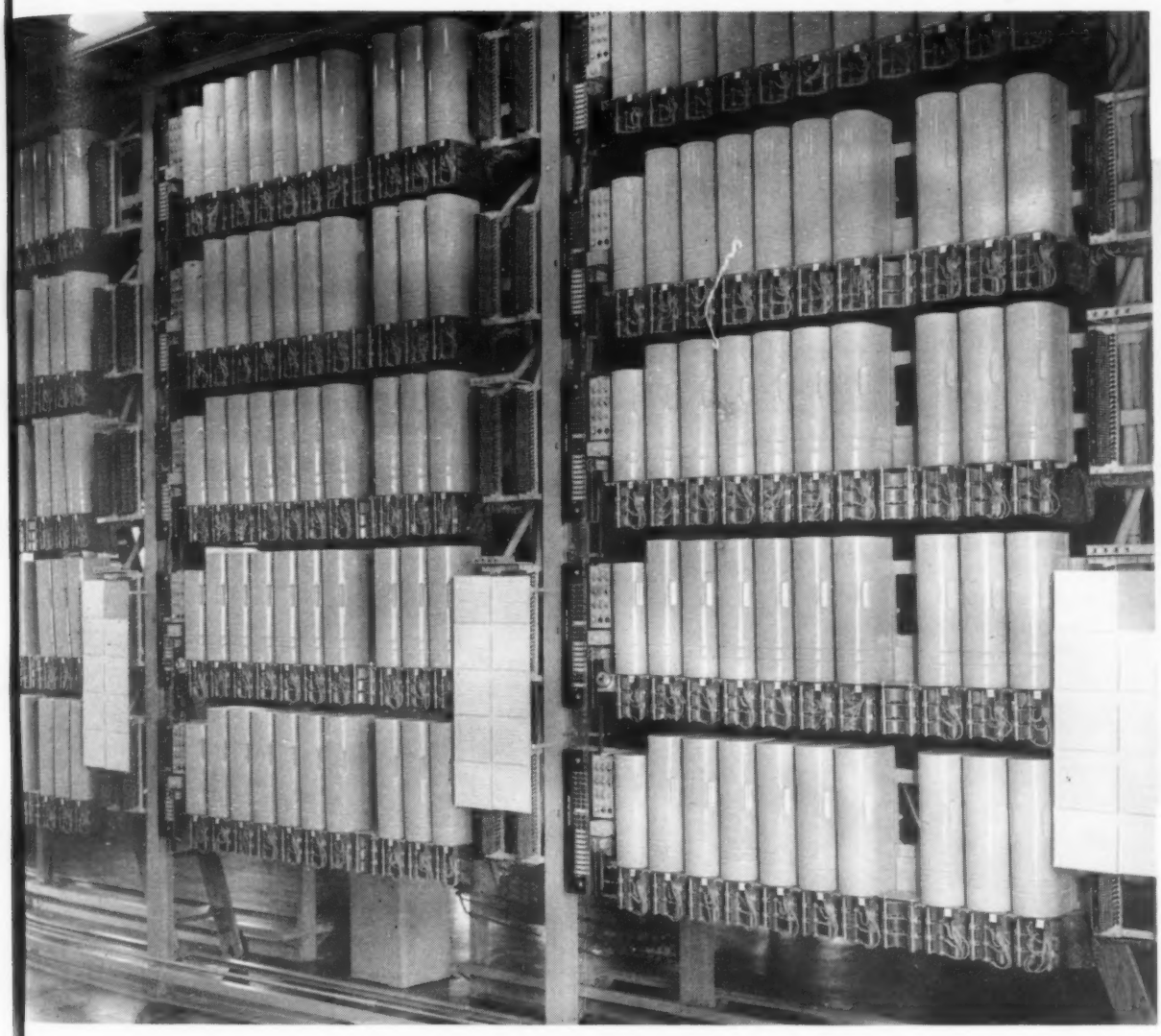
Denies Motion to Prohibit SW Bell Collecting Raise

A motion for a temporary order prohibiting Southwestern Bell Telephone Co. from collecting the tentatively-granted rate increase on a portion of September bills was overruled Nov. 3 by the Arkansas Public Service Commission (TELEPHONY, Sept. 23, p. 50).

T. J. Gentry, city attorney for Little Rock, asked that, until the refund question is settled, a temporary order be issued to prevent the company from cutting off the service of customers who have refused to pay the rate increase for the period in question.

Chairman Scott Wood said the commission had decided it has jurisdiction as to the legal effective date for the rate increase and would decide the case on its merits, but Gentry's motion

(Please turn to page 24)



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to prohibit removal of telephones of subscribers who have not paid was overruled.

The requested $4.5 million annual rate increase for the telephone company became effective Sept. 21 after the company posted bond to cover any possible refunds to customers.

The company bills customers in advance. Some of the advance-paid bills run from such dates as Sept. 16 to Oct. 15.

The controversy concerns whether the telephone company can increase rates on these bills effective Sept. 21, since they were paid in advance.

Opponents are arguing that the advance payment represented a "contract" with the company for telephone service at the price quoted in their advance monthly bills and that raising rates for a portion of that month was in violation of that contract.

Gentry, who represents municipalities fighting the rate increase, took issue with the commission counsel's motion that the refund question be decided and any refunds be made at the conclusion of the case.

He told the commission that the facts were not in dispute and that the matter should be decided immediately.

Some subscribers have paid the rate increase on a portion of their bills for last month and some have not, Gentry pointed out.

"They are threatening to cut off the service of the people who do not pay this charge," he asserted.

"They are entitled to relief."

Gentry continued that unless the commission prevented the telephone company from stopping service to those who have not paid the rate raise, there was no remedy for them.

V V

Illinois Independent To Charge Higher Rates

The Illinois Commerce Commission on Oct. 25 authorized the Minonk Telephone Co. to charge increased monthly rates. New charges include $3.00 for individual residence, $2.75 for two-party residence, $4.75 for individual business, and $4.25 for two-party business.

It was said the change in rates would amount to an increase of approximately 25 cents.

V V

New S. C. Company Formed

The Anchor (S. C.) Rural Telephone Company was to have been organized at a meeting on Oct. 30. Edwin Lanford is temporary president of the new company.

SW Bell Asks $8,477,890 Interim Increase in Oklahoma

The Southwestern Bell Telephone Co., through its general attorney John Cantrell, has applied to the Oklahoma Corporation Commission for an immediate rate increase of $8,477,890 while hearings on the permanent increase of $10,100,000 in Oklahoma are still in progress (TELEPHONY, Nov. 11, p. 34).

Mr. Cantrell said that the interim increase is asked because the company is anxious to proceed with its proposed $83,000,000 improvement program in the state. The commission took the application for temporary increases under advisement, indicating that some time might be required to reach a decision and that some additional evidence may be required.

V V

Three Indiana Independents Submit Rate Applications

The Indiana Public Service Commission Nov. 3 was requested by three telephone companies to grant emergency rate increases.

The petition said rates presently are inadequate for the Mace Telephone Co., Lizton Telephone Co., and Plainville Telephone Co. The properties also need complete rehabilitation, it added.

Revenue in each exchange would be increased approximately 100 per cent by the proposed rates.

V V

Re-Elect Commission Chairman

Harold A. Palmer, chairman of the Nebraska State Railway Commission, recently was re-elected to that office, defeating J. C. McReynolds, Lincoln (Neb.) lawyer. Mr. Palmer had been filling the unexpired term of Duane Swanson, resigned.

V V

Sets Hearing Date

A hearing into the Mountain States Telephone & Telegraph Co.'s application for a statewide rate increase in Wyoming has been set for Nov. 29 by the Wyoming Public Service Commission.

V V

Summary of Commission Rulings and Hearings

California Public Utilities Commission

Nov. 6: Hearing on petition of Pacific Telephone & Telegraph Co. for extension of time to comply with decision to file a verified monthly statement.

Nov. 6: Hearing on amended application of Los Gatos Telephone Co. for authority to increase rates for service at Morgan Hill and Los Gatos.

Illinois Commerce Commission

Nov. 15: Hearing on petition of Illinois Bell Telephone Co. for non-suspension of certain schedules.

Nov. 15: Hearing on application of Depue Telephone Co. for authorization to issue $6,000 of common stock and $8,000 of promissory notes.

Kansas Corporation Commission

Nov. 21: Hearing on application of Farmers Mutual Telephone Co., Manchester, for authority to change rates at Longford.

Nov. 21: Hearing on application of Woodston Mutual Telephone Co. for authority to operate.

Nov. 21: Hearing on application of Farmers Mutual Telephone Co., Gaylord, for authority to operate.

Nov. 21: Hearing on application of Cedar Telephone Co. for permission to transfer franchise and cease operating.

Nov. 27: Hearings on applications of Towanda and Benton Telephone exchanges for authority to change rates.

Dec. 18: Hearing on application of Hiattville Telephone Co. for authority to change rates.

Dec. 18 and 19: Hearings on applications of McKrae Telephone Co., Fredonia, for authority to cease operating and of American Telephone Co., Abilene, for authority to operate Altamont, Burlington and Fredonia exchanges.

Jan. 22: Rehearing on application of Waco Telephone Co. for permission to operate in Crawford.

New York Public Service Commission

Nov. 14: Hearing on petition of Delhi Telephone Co. for approval of: (1) Increase in its capital and number of shares; (2) issuance of 800 shares of common stock; (3) issuance of 200 shares of preferred stock; (4) transference of certain amounts from surplus to stock accounts, and (5) issuance of $80,000 principal amount of bonds.

Oklahoma Corporation Commission

Nov. 21: Hearing on application of Blue Ridge Telephone Co. for increased rates at Fargo.

Nov. 21: Hearing on application of Newcastle Telephone Co. for increased rates.

Nov. 23: Continued hearing on application of Kellyville Telephone Co. for increased rates, consolidated with hearing on service complaint of residents.

Nov. 24: Continued hearing on application of Wright City Telephone exchange for increased rates.

Dec. 6: Hearings on application of Southwestern Bell Telephone Co. for authority to increase rates in Oklahoma.

Dec. 6: Continued hearing on application of certain telephone companies for restoration of regulations relating to service installation, similar to Tariff U-2.

Dec. 13: Hearing on application of Murray Hill residents for service from Southwestern States Telephone Co., Brownwood, Tex.

Wisconsin Public Service Commission

Nov. 17: Hearing on application of Shell Lake Telephone Co. to discontinue portion of rural line at Timberland.

Strange "goings-on"?

TO THE PUBLIC, what goes on down a manhole, in a central office, in telephone laboratories and factories, is pretty much a mystery. But the sum of these "goings-on"—the best telephone service in the world—is something American people know so well that they take it as a matter of course. Western Electric's major contribution toward this satisfactory result is producing good equipment, the kind that makes possible good telephone service.

Western Electric

TELEPHONE APPARATUS AND CABLE

Drop Wire Usage Trends

(Continued from page 16)

conductors. Over this steel wire braid is extruded a heavy covering of Neoprene. The cable is manufactured in one-fourth-mile coils, with plug and jack couplings at each end. Construction of this cable would make it rather inconvenient for installation in the telephone plant. It does serve well as emergency wire for bridging pole line breaks, or as temporary carrier for working open wire circuits to avoid service interruptions during heavy maintenance and construction work.

The WC-534 cable has five-pair No. 19-gauge rubber insulated conductors. The conductors are formed into a round core with jute or cotton filling. Over this core is extruded a heavy Neoprene jacket. The cable appears to be sufficiently well constructed for permanent installation. It may be used in place of several drop wires for maintenance and other purposes described more fully hereafter. The cost of this cable per pair would normally be double that of drop wire; therefore its use is economical only as long as it can be purchased at reduced prices. When no longer available, consideration should be given to the use of one of the several makes of plastic sheath cable.

Maintenance

The operating telephone man gives a great deal of thought to methods for reducing drop wire maintenance cost. There follow several suggested methods, which have proved satisfactory under normal conditions.

A major portion of all drop wire failure is caused by trees or other obstructions, with which the wire comes in contact. When drop wires are placed, therefore, forces should be trained to select routing to provide adequate clearance. One common method is by proper selection of the point of attachment to the building. Often adequate clearance can be attained by attachment to the building at a remote point, even though a long vertical run to the point of entrance is necessary. Properly installed, vertical runs seldom cause trouble.

Another method for providing satisfactory clearance is to extend the drop parallel with the cable to a point where clearance can be obtained, then attaching the wire to the strand by means of a span clamp. Ladders equipped with strand hooks are desirable for making span clamp attachments safely. Again, clearance may be provided by extending the drop to an adjoining building for the initial attachment, then to the building for which the drop is intended. Where none of these methods are possible, the placing of a drop pole might be justified. This is especially true, if more than one drop wire is involved.

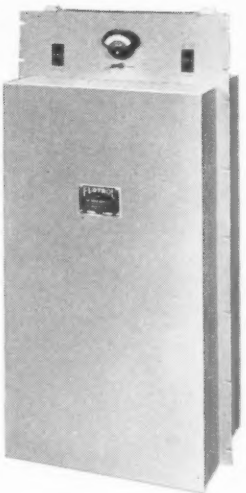
Where a drop wire must be extended through trees and it is impossible to trim for complete clearance, some protection can be given the wire by the use of spirally cut tubular plastic guards. These guards can be conveniently fixed in place by the use of "S" clips. When extending drop wires through trees more than the normal amount of slack should be provided, if possible, in order to reduce the pressure of tree limbs against the drop wire. Care should be exercised in providing the correct amount of slack in all drop wire spans. If the drop wire is too tight, undue strains will be placed on the attachments and on the wire at the point of attachment. If the wire has too much slack, insufficient clearance may be provided. Much drop trouble can be avoided by providing adequate clearance over roads, driveways, and farm yards. Pole top extension fixtures will frequently avoid expensive line pole replacements. The fixtures should be strong enough to withstand the full breaking strength of the drop.

Where there is only one terminal in a block, it is frequently necessary to have several spans of drop wire paralleling the cable. When the number of wires reaches three or four, consideration should be given the installation of an additional cable terminal. The presence of trees increases the feasibility of this practice.

Frequently, several drops extend from an end terminal to a pole, or poles, in line with the cable. Here installation of Neoprene or plastic sheath self-supporting cable would be economical, especially if the drop wires extend through trees. It would be much easier to provide tree clearance for a cable than for several wires. This cable may be terminated in one of the outdoor pole type arresters, with the carbons removed. The opening for the ground wire may be enlarged to take the cable. In this way the arrester serves only as a connecting terminal.

Some of the terminal manufacturers provide an outside five-pair substation protector, which might possibly be converted for terminating a five-pair cable. Similar use may be made of a Neoprene or plastic sheath cable to take place of drop wires extending to multiple unit homes or to buildings, in which there are several telephone installations. Here

STROMB



Model 1200 B
Single Phase
24 Amps.
50 Volts

flotrol

automatic battery chargers

SUPERIOR IN 5 WAYS:

1. **ECONOMY**: Experience has prov FLOTROL can save on power co up to 20% per year.
2. **DEPENDABILITY**: Mechanical fa ures are cut to next-to-nothing becau FLOTROL has no moving parts.
3. **RESPONSE**: FLOTROL answer load needs *instantly*—keeps batter fully charged at all times.
4. **LIFE-SAVING**: FLOTROL work while your battery rests—gives an battery longer life.
5. **SAFETY**: Automatically limits cu rent to safe value on overloads.

FREE! Write for Bulletin 137, a complet catalog of FLOTROL, its technique, an its models.

STROMBERG-CA

STROMBERG Telephone CARLSON

TELEPHONES, SWITCHBOARDS • SOU UIPM

BERG-CARLSON recommends...

the new Cook testerm *drop wire connector . . .*

reduces the annoyance of high resistance connections, facilitates testing, and reduces maintenance costs.

A great improvement in the method of connecting subscriber drops to open wire. "Testerm" is mounted on the cross-arm and provides a dry spot connection, thus insuring improved transmission.

Tie wires are attached to the open line wires with a split sleeve and are terminated on two 12-24 studs that are set in a glazed, low moisture absorption, porcelain block.

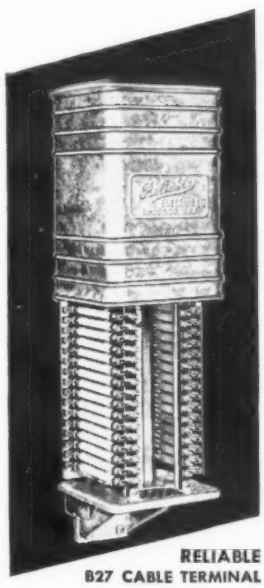
Drop wires are attached to the same studs. This permits testing without opening a taped connector.

The one-piece drawn metal hood is Monel. The terminal is weather-proof and all metal parts are rust-proofed.

a product of actual field study

The Reliable B27 Protected Cable Terminal has resulted from basically sound engineering, supported by actual field experience. It places all connections within convenient reach of the lineman without necessity of removing fuses or reaching around the terminal—also a decided advantage in inspecting.

Detachable mounting bracket permits one-man installation. Ground connection is made directly to ground strip, reducing possibility of high resistance ground. Reliable Self-cleaning Sawtooth Discharge Blocks are standard—insuring dissipation of static discharges without danger of unnecessarily grounding the line.



RELIABLE
B27 CABLE TERMINAL

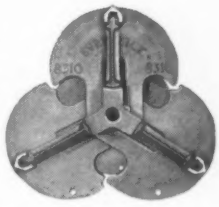
everstick anchors

. . . are designed to meet the most rigid anchoring and guying specifications.

The patented EVERSTICK Nut Housing locks anchor firmly on rod, making installation simple under all conditions and permitting easy recovery of the rod. Note well-designed, heavily constructed sections of metal in base plate.

EVERSTICK Expanding Plates are *ribbed* to double their original strength; their cutting edge and wedge shape arm socket reduces earth resistance to a minimum and assures easy expansion.

Three-Way EVERSTICK with expanding plates—contacts solid earth at every point around base plate, giving full benefit of earth's holding power.



Spreader Arms extra heavy ribbed with ball and socket joint at top and clinched socket on expanding plates allow heavy bearings to move freely with minimum friction, insuring easy expansion which eliminates buckling or breaking of arms.

EVERSTICK Anchor

. . . the anchor of merit

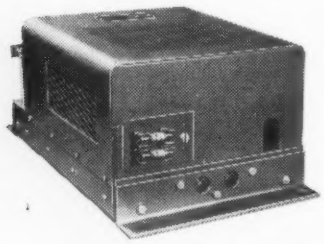
RGCARLSON

Factory, General Offices: Rochester 3, N.Y.
Branch Offices: Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto

UIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • RADIOS, RADIO-PHONOGRAPHS, FM AND TELEVISION

ONLY C-D offers this wide experience in vibrator converter design

Here are three C-D designed Converters of widely divergent characteristics. Each was developed to meet the specific need of a Cornell-Dubilier customer. The Converter you need may be a far cry from any of the types shown here. But the same skill and experience used in developing these designs can be turned on your needs. Whether it is a fathometer, microwave apparatus, or office equipment, our engineers will be glad to discuss your problem.

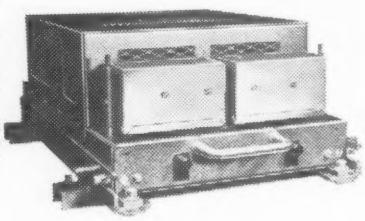


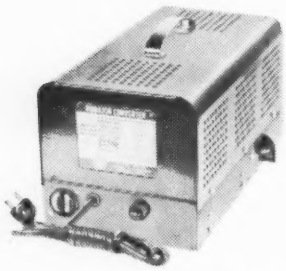
MODEL 3212 VIBRATOR CONVERTER

input: 12 volts D-C.
output: 115 volts 60-cycle sine wave A-C with voltage and load regulation. Max. power: 175 volt amperes.
application: For vehicles with 12-volt systems (cabooses, busses, trucks, etc. carrying communications equipment, wire reproducing equipment, fluorescent or neon lights, that require 115 v., 60-cycle sine wave A-C for operation.
features: Exclusive C-D voltage regulating circuit permits only slight variations in output voltage for wide variations of input voltage or load. Two vibrators, with automatic switch-over from service vibrator to standby vibrator.

MODEL 3210 HEAVY-DUTY CONVERTER

input: 120 volts D-C nominal (normal range from 95 to 135 volts D-C).
output: 115 volts 60-cycle A-C Max. power: 375 volt amperes (continuous).
application: Railroad or marine service. For 2-way radio communication, radar, and other types of radio equipment.
features: Exclusive C-D voltage regulating circuit. Automatic standby-vibrator switch-over. Electrical components have high safety factor for long life. Designed for vertical or horizontal mounting.





MODEL 110 RT 15

input: 115 volts D-C.
output: 115 volts A-C, 60-cycle.
application: For wire recorders.
features: Sine wave regulated; automatic starting; input line filtering.

Many stock models are shown in Catalog No. 410, available from: CORNELL-DUBILIER ELECTRIC CORPORATION, *2900 Columbia Ave., Indianapolis, Indiana. Other plants in South Plainfield, New Jersey; New Bedford, Brookline and Worcester, Massachusetts; Providence, Rhode Island; and subsidiary, The Radiart Corp., Cleveland, Ohio.*

40TH ANNIVERSARY CORNELL-DUBILIER CONVERTERS 1910 1950

CORNELL-DUBILIER
VIBRATOR CONVERTERS
BEST BY FIELD TEST

RADIART SUBSIDIARY

A GREAT NAME IN CAPACITORS – A GREAT NAME IN CONVERTERS

again, use might be made of a multiple unit substation protector.

The foregoing illustrates methods of reducing the amount of drop wire in service. With a reduction of drop wire mileage, there should be a corresponding reduction in drop wire maintenance cost.

Frequent failures in drop wires are caused by connections at splices, or at party line and open wire taps. These can be almost entirely eliminated by proper use of test connectors and sleeves available from several manufacturers.

The importance of providing adequate clearance on joint used poles is a factor in drop wire maintenance. On such poles, the drops should extend from guard arm hooks installed at the ends of the arm. Properly insulating or guarding drop wire runs on buildings will avoid many cases of trouble and much maintenance expense. In general, serious study should be given the use of the many devices for supporting drop wire — such as hooks, brackets, angle screws, span clamps, cleats, knobs, and screw eyes, which are available from any telephone supply house. Intelligent use of these items will substantially reduce drop wire maintenance cost. Information regarding these items will be gladly furnished by the suppliers' representatives, who are as close as your telephone.

Improvement in Pole Line

(Continued from page 18)

combined main and subsidiary conduit to allow the subsidiary ducts to branch away from the main run. It is also used where it is necessary to divide a conduit run in order to straddle a pipe or other obstructions in the trench.

Mitered Conduit. Mitered clay conduit is used in constructing curves in multiple clay conduit formations. It is necessary in some cases to construct "S" curves in conduit runs where manholes cannot be properly lined up due to obstructions encountered. Mitered conduit is also used in making a right angle turn in a conduit run to avoid constructing additional manholes.

Mortar Bandages. The use of mortar bandages for joining the units of multiple clay conduit has been found to be an improvement over the previous method of plastered joint. The mortar bandage is a cement wrapping prepared on the job for application around the joints. The bandages are made by folding a cheesecloth envelope so that

it encloses a ribbon of cement mortar. A strip of asphalt saturated roofing felt is placed under the outside cheesecloth wrapper to make the bandage easier to handle and to help retain the moisture during the setting of the cement.

Also included within the bandage is a second strip of cheesecloth which acts as a binder to reinforce the mortar against displacement during handling. The most commonly used bandages are one-half inch thick and seven inches wide, with the length determined by the size of the duct formation. The bandages are prepared with the aid of a metal tray which can be made up locally by a sheet metal shop. This tray is one-half inch deep, seven inches wide and the same length as the bandage. The cheesecloth and felt materials can be purchased cut to the correct sizes for the various conduit formations.

It is the plan of the sub-committee on Pole Lines and Conduit to keep abreast of improvements and advancement in the art of connection with these subjects and this sub-committee will welcome questions concerning these topics at any time. The sub-committee will also welcome any information and suggestions concerning new methods and improvements dealing with pole line and conduit construction.

V V

BOOK REVIEW

ELECTRICAL ENGINEERS' HANDBOOK—Electrical Communication and Electronics. Fourth Edition. Harold Pender and Knox McIlwain, Editors. $8.50.

This book has been a popular handbook for communications and electrical engineers for years. The first edition was published in 1914, the second in 1922, and the third in 1936.

It is divided into 23 sections covering the following subjects:

Mathematics, units and symbols; properties of materials; resistors, inductors and capacitors; electron tubes; electrical circuits, lines and fields; passive circuit elements.

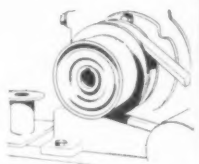
Vacuum-tube circuit elements; frequency modulation; pulse techniques; transmission circuits; electrical instruments; acoustics; electromechanical-acoustic devices.

Optics; electro-optical devices; sound-reproduction systems; *Telephony;* telegraphy; facsimile transmission and reception; television; electronic control equipment; radio aids to navigation; medical applications of electricity.

This book may be ordered from TELEPHONY.

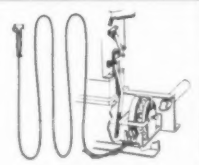
DIGS 9-foot holes anchor holes screws in anchors with SPEED and EFFICIENCY

Highway's Model P. E. Digger gives you clean, fast operation in every step of digging holes 9 to 16 inches in diameter in average soil and in setting poles. We know of nothing to equal it in operation, design, or low-cost maintenance.

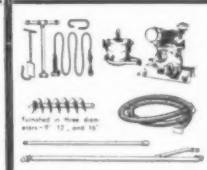


Automatic Centrifugal Clutch — No danger of breakage or injury to operator. Trouble-free operation.

Independently Powered Engine — Power to spare in this portable, air-cooled gas engine.



Quick-Action Controls — Complete control of feed and power at all times.



Simple, Compact Mechanism — Only a few basic parts. Simplifies operation, cuts costs.

Complete Portability. Can be transferred from one truck to another without alterations or additional equipment. No power take-off necessary. No truck drive-shaft needed. Torque arm can be attached to base of the engine or to the platform of the truck. Light enough for easy handling by two-man crew.

Fast Operation. Digs up to a 9-foot hole, in average soil, 9 to 16 inches in diameter, in just a few minutes.

Economy. Low initial cost and trouble-free, low-cost operation means more profitable use.

Versatility. Serves for day-in, day-out pole-setting work, or for special service. Works on any truck that carries a winch and a derrick.

Easy Operation. Workers like to use it. Easy to move into position and to operate.

Safety. Mechanism and operator are protected at all times by the automatic clutch.

HIGHWAY TRAILER COMPANY

Headquarters: Edgerton, Wisconsin

PLANTS AT EDGERTON, WISCONSIN — STOUGHTON, WISCONSIN
CINCINNATI, OHIO

Manufacturers of Utility Truck Bodies • Earth Boring Machines • Pole and Cable Reel Trailers • Winches • Power Take-offs • Service Accessories

THE PLANT MAN'S *note book*

BY RAY BLAIN TECHNICAL EDITOR

NOW in use at Penn Station in New York City is the first installation of "Intelex," an automatic system which makes and confirms requested space reservations in a matter of seconds, while fully recording all transactions. It combines the principles of the dial telephone, magnetic recording, printing telegraph equipment and automatic bookkeeping—almost instantaneously transmitting to ticket seller all reservation bureau information so that the entire ticket transaction time is cut to a third.

• • •

It has been said: "Slang is language that takes off its coat, spits on its hands, and goes to work."

• • •

Someone has said that talk literally won't solve power problems. A physicist explains it this way: If all the 7,000,000 residents of New York City were to speak at one time, the total energy generated would be just about enough to light a 60-watt lamp.

• • •

The C&P *Transmitter* explains how, through the ingenuity and resourcefulness of several Washington, D. C., telephone men, Congressman Robert Crosser of Ohio is now using a new telephone arrangement especially designed for his use.

Congressman Crosser has been confined to a wheel chair for a number of years. He is paralyzed to the extent that he is unable to hold the handset when using his office telephone, and it has been necessary for a member of his staff to hold the telephone to the congressman's head for the duration of each call.

After considerable field testing, a special loud speaking telephone was developed that consisted of a 1016 "calendar" microphone, 100-F loud speaker, 684A subset and 6017-E key, all located on the congressman's desk.

A small stand was provided to hold the microphone at speaking level and to serve as a mount for the keys. By operating the keys up or down, Mr. Crosser can easily connect with either of his two PBX extensions and establish two-way conversations. Restoring the key to the middle position will disconnect the set.

• • •

The world's first submerged transatlantic cable amplifier has been installed by the Western Union Telegraph Co., 1,800 ft. down on the ocean's bottom, northeast of Newfoundland. This device, it is believed, will double the speed of that cable.

This three-stage amplifier, connected in the cable about 200 miles at sea, increases the message capacity by amplifying and reshaping the wavefront of signals which have become weak in traveling from the remote end of the cable. The equipment is sealed in a rectangular steel case about five feet long and a foot square. The complete unit weighs approximately 1,110 pounds.

The depth of the ocean at the point of installation, 1,800 ft., is sufficient to insure that the amplifier will be safe at all times from ships' anchors, the nets of fishing trawlers, and other hazards present in shallower water.

Space in the amplifier casing that is not occupied by the electrical equipment is filled with oil. A pressure-equalizing device automatically adjusts the pressure within the case to the external sea bottom pressure of nearly 800 pounds per square inch, resulting from the weight of the water above. This is roughly four times the steam pressure commonly used in railway locomotives. The pressure equalizer is a piston-cylinder and a bellows constructed of monel metal that sea water will not corrode. The cable conductors enter the case through insulating glands which keep sea water out.

Electric power for operation of the equipment will be supplied from the Western Union cable station at Bay Roberts over the single cable conductor on which the signals also are transmitted. Three complete sets of vacuum tubes are enclosed in the amplifier. An electrically operated switch, controlled from the station, will change tubes in the event of tube failure.

• • •

A new type of military field communication wire, recently developed by the Signal Corps, has withstood all the rugged conditions of combat encountered in Korea. This wire represents a successful effort by Signal Corps engineers to combine the substantial talking range and other characteristics of standard field wire with the reduced size and easy carrying properties of assault wire used by fast moving troops in World War II. It is particularly suited to airborne operations.

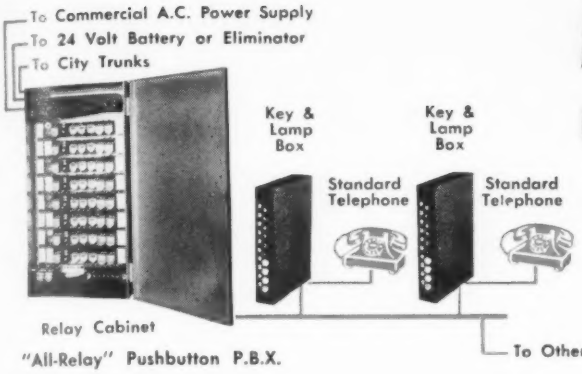
The improved wire provides a talking range of approximately 12½ miles, and weighs about 46 pounds per mile. It consists of two conductors, each individually insulated and jacketed, and twisted together to form a light flexible, flat-lying, twisted-pair. Each conductor is composed of three zinc-coated high carbon steel strands and four tinned copper strands, all twisted together in a tight, concentric bundle, covered by a tight-fitting cylinder of polyethylene. A thin covering of nylon provides a tight waterproof container for the strands.

Companion item to the new wire is an improved dispenser, the result of research to develop a wire coil that can release wire at high or low speed without the use of reels or reel equipment. This dispenser is constructed of canvas and tape and, when wound with its maximum one-half mile of field wire, is approximately 13½ in. in diameter and 5½ in. wide, weighing only 28 pounds.

Field wire can be released from this improved dispenser by packboard from a soldier's back without use of his hands, from any land or amphibious vehicle, or even from an airplane.

NORTH P.A.B.X.'S

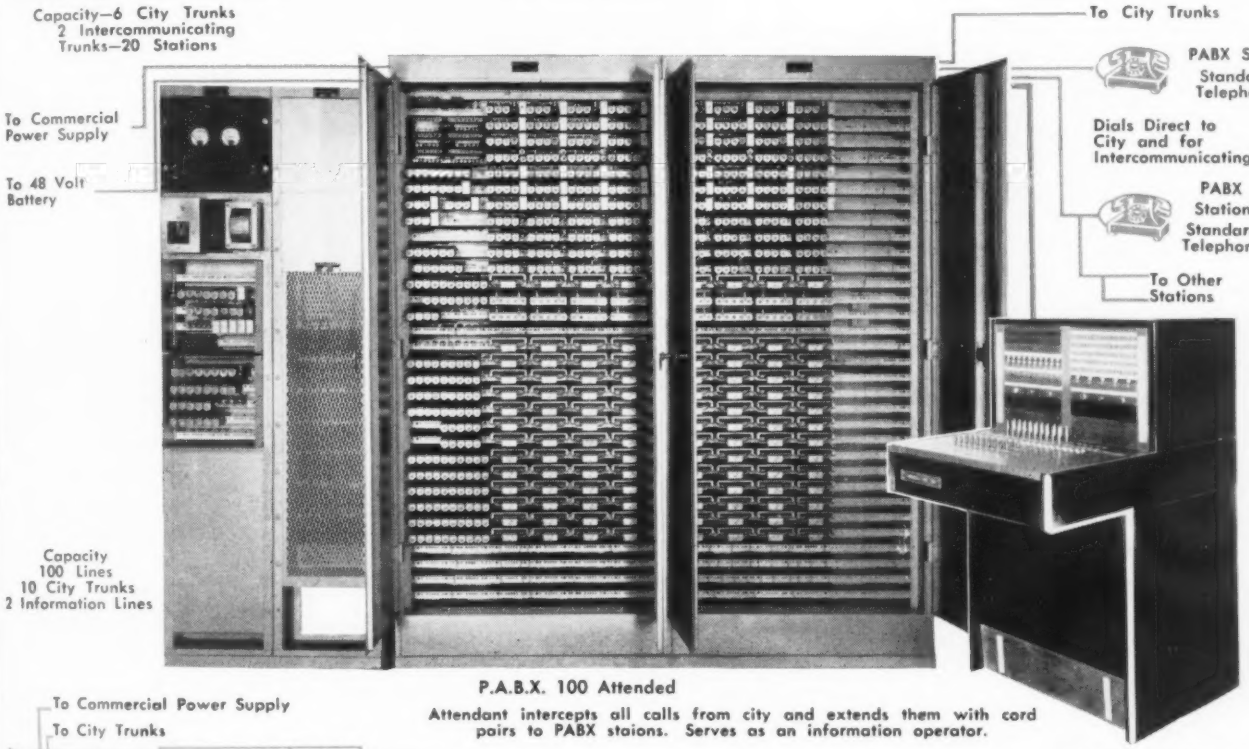
BUILD NEW REVENUE



"All-Relay" Pushbutton P.B.X.

Capacity—6 City Trunks
2 Intercommunicating Trunks—20 Stations

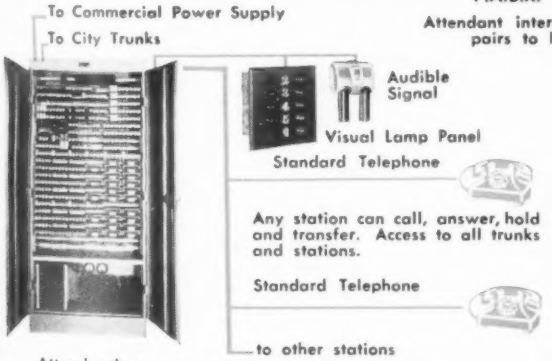
Visual and audible signals for trunks and intercom. No special operator required. Any station can call, answer, hold, and transfer Access to all trunks & all stations.



P.A.B.X. 100 Attended

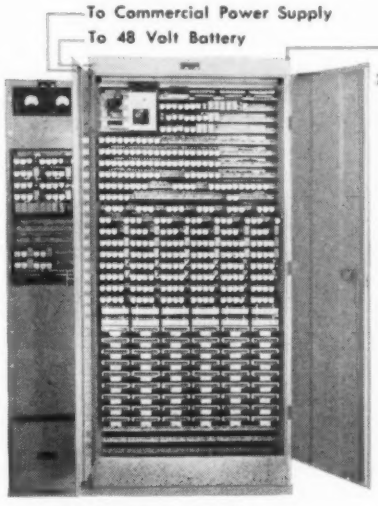
Attendant intercepts all calls from city and extends them with cord pairs to PABX staions. Serves as an information operator.

Full Multiple Attendant's Cabinet


To Commercial Power Supply
To City Trunks
Audible Signal
Visual Lamp Panel
Standard Telephone
Any station can call, answer, hold and transfer. Access to all trunks and stations.
Standard Telephone
to other stations

Attendantless P.A.B.X. 30

Capacity—30 Lines—6 Links
5 City Trunks


To Commercial Power Supply
To 48 Volt Battery
To City Trunks
Cordless Turret Attendant's Cabinet
Attendant intercepts all calls from city and extends them by dialing to PABX stations. Serves as information operator.
Standard Telephone
Dials Direct to City and For Intercommunicating
PABX Station
To Other Stations

P.A.B.X. 60 Attended

Capacity — 60 Lines
6 City Trunks

SOME TYPICAL FEATURES

Two-Party Service	Automatic Code Call
Conference Service	Watchman's Service
Executive Right-of-Way	Monitor Service
Discriminated Service	Night Answering

Write for North P.A.B.X. Catalog and Sales-Aid Kit

THE NORTH ELECTRIC MANUFACTURING CO., Galion, Ohio, U. S. A.

Originators of **ALL RELAY** *Systems of Automatic Switching*

IT'S LATER THAN YOU THINK! *If your switchboard requirements for five years to come are not filled, you'll be smart to* **ORDER NOW.**

"PACKAGED POWER"
for your PBX *and* SMALL SWITCHBOARDS

THE LORAIN
SUB-CYCLE
"RT-UNITS"

Here combined in one cabinet is both a ***Ringing*** and a ***Talking*** power supply. They provide a choice of either 20 or 30-cycle SUB-CYCLE RINGING CONVERTERS, and are available in 4 Models.

RINGING CONVERTERS

- RT-1—3½ W. 20-Cycle ringing +.87 amp. 14-28 V. DC talking.
- RT-2—3½ W. 20-Cycle ringing +2 amp. 24 or 34 V. DC talking.
- RT-3—3½ W. 30-Cycle ringing +.87 amp. 14-28 V. DC talking.
- RT-4—3½ W. 30-Cycle ringing +2 amp. 24 or 34 V. DC talking.

For Details See Bulletin 159

LORAIN "T-UNITS"

- T-1—0.87 amp. 14-28 V. DC talking
- T-2—2.0 amp. 24-34 V. DC talking
- T-3—0.5 amp. 22-30 V. DC talking
- T-4—1.0 amp. 40-52 V. DC talking
- T-5—0.5 amp. 10-16 V. DC talking
- T-6—1.0 amp. 5-8 V. DC talking

For Details See Bulletin 159

LORAIN DIAL TONE GENERATORS

Lorain Dial Tone Generators Available in 7 Models. See Bulletin 156. For Specifications and Prices See Your Local Lorain Distributor.

LORAIN
PRODUCTS CORPORATION
DEPT. P, 1122 F ST., LORAIN, O.

FLOYROL
PARTNERS IN DEPENDABILITY
SUB-CYCLE

PLANT MAN'S QUIZ

Q. We have found low insulation in a comparatively new splice of our cable vault which is due to a trace of dampness. The splice was flash-tested and did not indicate a leak. Will you please explain the possible cause of this trouble?

A. This particular type of trouble is often caused by cable breathing, which is the result of expansion and contraction of air in an aerial cable. When a cable cools at night, air may be sucked in through the silk and cotton tip cable on the main frame. Consequently, when moist air is pulled into a cable in this manner and then cooled below the dew point, the condensation results in trouble.

The best remedy for this condition is to fill the splices in the cable vault with paraffin to check the air flow. A gas plug in the cable near the main frame will also prevent any possible trouble which is due to cable breathing. In addition, gas plugs are required frequently in lead covered cables that extend inside buildings and are connected to terminals that make use of silk and cotton insulated tips.

• • •

Q. When rods are used to provide a ground connection for an unattended dial exchange, how should they be installed?

A. We are advised by one manufacturer of dial equipment that at least five ground rods about one-half inch by eight feet should be driven into the ground eight feet or further apart. These rods are all in turn soldered to a No. 6 copper wire which is extended into the exchange. This ground should also be connected to the pipes of the local water supply when one is available to lower the resistance of the connection.

• • •

Q. What is the meaning of the term "elastic limit" of telephone line wire?

A. In telephone line work, this term is used as a matter of convenience to indicate the loading which may be placed on wires and strand without producing a permanent stretch which may affect the performance of the line.

Neither steel nor copper wire is truly elastic and some permanent stretch or set occurs even at relatively low unit stresses. The permanent set is not excessive in either type of wire at values of stress less than about 50 per cent of the breaking strength of the wire. Therefore, the elastic limit of new copper wire, steel wire, and strand is generally regarded as being 60 per cent of the breaking strength.

Old wire which has been exposed to high stresses in service may have values of elastic limits higher than the above-mentioned percentage in some cases.

• • •

Q. When it is necessary to attach an aerial cable to a steel bridge to cross a stream, what precautions should be observed?

A. First, approval of the proper authorities should be obtained in all cases.

Never remove any bolts or nuts from the bridge and do not use any attaching devices that require the drilling or cutting of the steel structure. Attachments should be made, if possible, so as not to interfere with painting of the bridge.

In general, when it is necessary to attach a cable to a steel or concrete bridge, the cable is insulated from the structure by attaching the supporting strand to wooden supports.

• • •

Q. What are the different types of telephone carrier systems used to provide telephone voice circuits?

A. Carrier systems are of three kinds which differ in the way the two directions of transmission required for telephony are handled. These three kinds are physical four-wire, balanced two-wire, and equivalent four-wire. The particular type used has important reaction on the application and layout of carrier systems.

Physical four-wire systems are those which use separate pairs and the same band of frequencies for each direction of transmission. The system uses two independent one-way paths like an ordinary four-wire telephone circuit, except that the frequency band extends beyond the voice range. Physical four-wire systems are used for carrier on cables because this results in the lowest practicable top frequency and attenuation for a given number of circuits. When used on open wire lines, physical four-wire systems are subject to high crosstalk between high-level outgoing currents of one system and low level incoming currents of the same frequency on another system, unless repeater spacings are suitably reduced.

Balanced two-wire systems use only one pair of wires and the same frequency band for each direction of transmission. Hybrid coils and balancing networks are used at terminals and repeaters to separate the two directions of transmission. The transmission path between terminals is like an ordinary two-wire telephone circuit except for the higher frequencies used. Freedom from instability and singing is obtained by the balancing between the lines and networks and by use of short repeater sections with only moderate gains. Balanced two-wire operation is of use principally on open wire lines, but can be applied also to other types of wires for short distances. The number of balanced two-wire carrier systems that can be worked on an open wire line without danger of high crosstalk between different systems will depend upon the repeating spacing, type of line, etc.

Equivalent four-wire systems use only one pair of wires, but the frequency bands for the two directions of transmission are different, one band being above the other in frequency. Separation of the two directions at repeaters and terminals is done by means of filters. This avoids the disadvantages of two-wire balanced operation while requiring only one pair of wires and retaining all of the transmission advantages of a four-wire circuit. However, these advantages are gained at the expense of more than doubling the top frequency of the system. For this reason, equivalent four-wire carrier operation is normally used only on open wire lines. As a given frequency band always transmits in the same direction for any system on the line, crosstalk is of the far-end type. Therefore, repeaters of higher gain may be used and a large number of systems can be worked on a line with suitably designed transpositions.

• • •

Q. What is preformed messenger strand and is it easier to handle than the conventional variety?

A. In this type of strand, each individual wire is given its set or permanent shape before being laid in the strand; hence, the wires have no urge to uncurl or spring apart, even when cut. Preforming greatly reduces inner tension. Preformed strand costs slightly more than the ordinary variety, but it is certainly much easier to handle on the job.

V V

"If the American way of living is not the best, no other nation has been able to prove it."—Dillon (S. C.) Herald.

...for protection against decay and insects, creosote is the only preservative that has service records to prove it can keep poles sound for decades!

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Here are excerpts from typical case histories: "600 out of 607 pressure-creosoted poles were still serviceable after 21 years in line. Of the 7 poles no longer in service, 5 had been removed because of a grade-crossing clearance—2 because of an accident." . . . "After 30 years in line, 68 out of 71 poles treated with creosote were still sound and serviceable. Of the remaining 3 poles, 2 had been removed because of line changes—1 had been damaged by lightning."

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Chicagoan Analyzes Problems, Character, Over Telephone

A Chicago gentleman, whose hobby is solving problems and analyzing character over the telephone, got started in his unusual avocation as a result of a dispute with the Illinois Bell Telephone Co. over a bill. After a service representative had calmed him down, they had a friendly chat which wound up with Bill Emmons describing her accurately, even to a mole on her cheek. The IBT girl refused to believe he'd done it by telephone, insisting he must have seen her in the business office. To prove his point, he described another girl after hearing her voice. That started it. The grapevine spread the story and his telephone began to ring.

When a Chicago newspaper wrote him up in 1948, the parade was really on. He estimates he's talked to more than 9,000 people since he adopted his hobby on a full-time basis.

"My callers are from all levels of society," he says, "from the highest to the lowest. I've had calls from scientists and from dance-hall girls."

He guesses that his analyses have been about 90 per cent accurate. And much of the advice he's passed out—he'll give it on almost any subject—has borne fruit.

Do people ever thank him when they profit by his advice? Indeed, they do!

"A few years ago," he relates, "a man who was about to lose his house called me for advice. I analyzed his problem and worked out a budget for him. Recently he called me to tell me his house was all paid for and now he'd like my advice about buying a store."

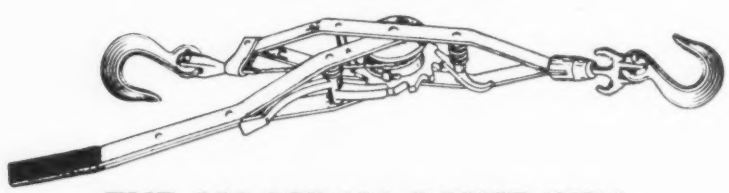
Where did he acquire such an encyclopedic store of knowledge?

A well-traveled man who's done just about everything, Mr. Emmons always liked to read and he remembered practically everything he read or heard.

As for the analysis business, he explains it this way. "It's probably a question of extrasensory perception. I imagine I was born with it. Recent psychological experiments seem to indicate a pretty sound basis for the idea. Of course, just about 90 per cent of the stuff you hear about psychic phenomenon is the bunk, but the other 10 per cent has some truth in it."

Added to the "gift," Mr. Emmons has a logical mind that makes his deductions add up to a pretty accurate answer. That helped him some years ago when he worked at exposing fake mediums preying on the credulous for a Chicago newspaper. "That's the sort of thing that falls into that 90 per cent bunk," he explained.

"THE HANDIEST PULLER I EVER HAD" USER REPORTS



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IT'S STRONG—Capacity ¾ ton with a 50% tested overload. 14 to 1 power ratio.

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IT'S SAFE—Pawl retainer holds ratchet firmly; yet may be released easily to permit slacking off with safety.

Sent on Approval

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In the Nation's Capital

(Concluded from page 14)

In the current issue of *Harvard Business Review*, Dan Throop Smith, a professor of finance at Harvard Business School, also blasts the excess profits tax. He charges that it "leads to waste and inefficiency even in the best run corporations. This is not necessarily due to a sense of perversity on the part of management; it is an almost inevitable human reaction to a system in which 66 to 80 or 95 per cent of any expense, depending on the marginal tax rates, comes out of taxes and is 'paid by government'."

The economist for the National Association of Manufacturers, Harley L. Lutz, puts it another way: "The consequence of undermining the profit incentive (through EPT) is also to undermine the cost incentive." And: "Disregard of cost means inefficient use of much power and many materials. . . . Less goods will be turned out, and if the military preempts its established quota, the full impact of the shortage will fall upon the civilian population."

The *Chicago Journal of Commerce* recalls that still another writer has commented that EPT "constitutes a standing offer by the government to pour several dollars down any rat hole in which a business concern drops one dollar." The effect may show up in any item from salesmen's expense accounts to a request by a plant superintendent for new equipment.

V V

Frank Woods Receives Public Service Award in Nebraska

Frank H. Woods, organizer, president and now chairman of the board of the Lincoln (Neb.) Telephone & Telegraph Co., was the recipient Nov. 10 of the gold medal annually awarded by the Lincoln Kiwanis club to a Nebraskan with a notable record of public service.

Speaking in tribute to Mr. Woods was John H. Agee, retired general manager of the company.

The presentation of the medal, which carried a citation for distinguished service as a "lawyer, industrialist, philanthropist and citizen," was made by the club president, Merle Hale, who is also the company's general commercial superintendent.

An Open Letter to all users of Utility Bodies

During a national emergency our company is faced with many additional problems. Supplies are scarce, customers requirements are greater, and in addition we have the responsibility of supplying materials for our fighting forces. Although the future is indefinite, our company has made certain plans . . . and we feel that the utility companies are entitled to know how we have been affected to date and what we are planning ahead.

Serves Only Utility Companies

The J. H. Holan Corporation was organized with the express purpose of supplying the utility industry with bodies and allied equipment. We serve only the utility companies . . . do not divide our attention between two or more industries. We acknowledge a debt to those companies who are responsible for our rapid growth, and they deserve every consideration in any allocation of our services should it become necessary.

Military Requirements

We will extend whatever manufacturing priorities are required to serve government orders which our company will be called upon to process during this partial mobilization stage. It is our intention to render this service with a minimum of interference to our essential utility business.

Supplies Are Scarce

The problem of supplies is a serious one. Materials are hard to obtain and under the new government priority system probably will get worse. Our suppliers have been co-operative. Still they are having difficulty holding their delivery promises and price lines, which directly affects the delivery of equipment to our customers. It will be necessary for us to keep our prices in line with the increased material and labor costs.

Increased Plant Capacity and Facilities

Every effort is being made to increase our service. An addition to our plant, which will increase production capacity approximately 50%, is almost completed. This will allow us to step up delivery of new equipment and expand our replacement parts service. New plant equipment will rectify many of the production problems which have slowed our delivery of special equipment. Our engineering department has been expanded with the express purpose of offering the industry many improved features and outstanding developments.

We Invite Your Inquiries

We believe our company is in a better position than ever to serve the utility companies. We invite your inquiries. You can be sure they will receive our immediate attention and every effort will be made to give prompt delivery of all types of Holan utility equipment.

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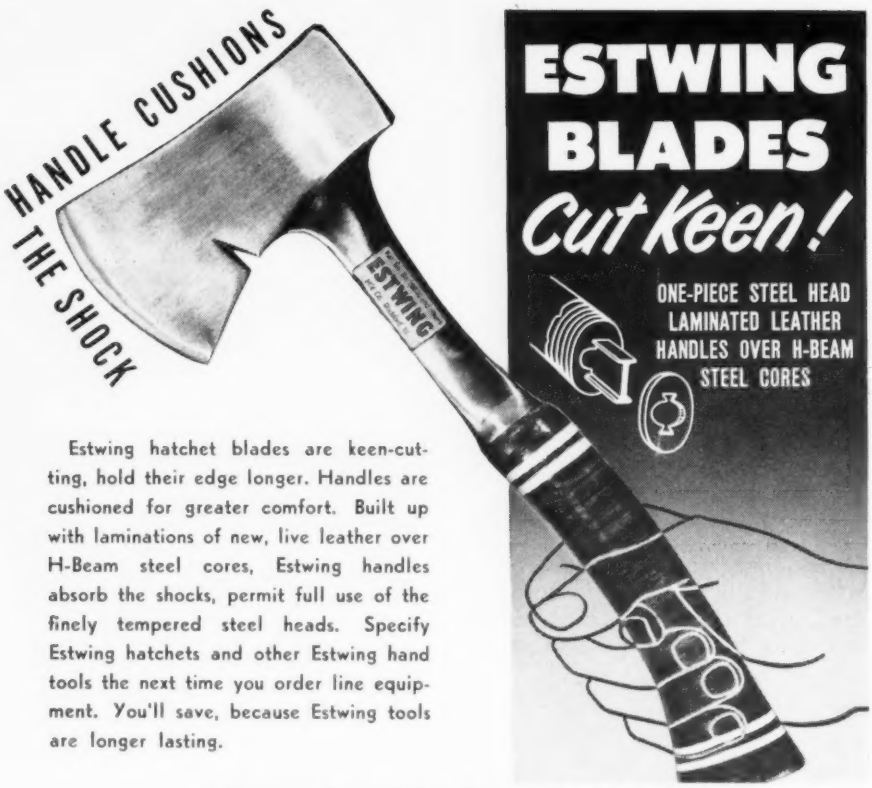

Estwing hatchet blades are keen-cutting, hold their edge longer. Handles are cushioned for greater comfort. Built up with laminations of new, live leather over H-Beam steel cores, Estwing handles absorb the shocks, permit full use of the finely tempered steel heads. Specify Estwing hatchets and other Estwing hand tools the next time you order line equipment. You'll save, because Estwing tools are longer lasting.

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FUNGUS-PROOF

Nylon LACING CORD

resists mold and micro-organisms

- Intensive research in the laboratories of Heminway & Bartlett has resulted in the development of a fungus-proof Nylon Lacing Cord. This new cord – with its special synthetic resin coating – resists the growth of mold and micro-organisms, factors most often responsible for the deterioration of old type linen and cotton lacing cord and the subsequent corrosion and failure of telephone equipment.

Heminway & Bartlett's new special finish Nylon Lacing Cord retains the desirable malleability of wax and yet has a melting point of over 190°F. It is non-toxic to humans. We'll be glad to send you full information and prices . . . no obligation, of course. Why not write us today!

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Branches: 617 Johnston Building, Charlotte 2, North Carolina; 222 West Adams Street, Chicago 6, Illinois; 77 S. Main Street, Gloversville, New York; 716-32 N. 18th Street, St. Louis, Missouri.

West Kentucky Cooperative Plans REA Loan Application

Officials of the West Kentucky Rural Telephone Co-Operative said recently that the co-op probably will apply for a loan from the Rural Electrification Administration.

A spokesman for the co-op, the territory of which includes all that covered by the West Kentucky REA, said that the organization would probably apply for a loan of from $300,000 to $500,000. He added that probably the first project undertaken would be the rural telephone system in south Graves county.

Twenty-one applications to REA for loans to improve the rural telephone systems in the state are now pending. The loans applied for total $3,197,800.

Answers to Questions on Page 19

(1) Ascertain how many numbers he wishes and, if he wishes no more than two, give the desired information.

(2) If the customer wishes not more than five, obtain and record the details. Request the calling number and tell the customer that you will call him. Refer the list to your supervisor. The supervisor will obtain the desired information, call the customer, and give him her report.

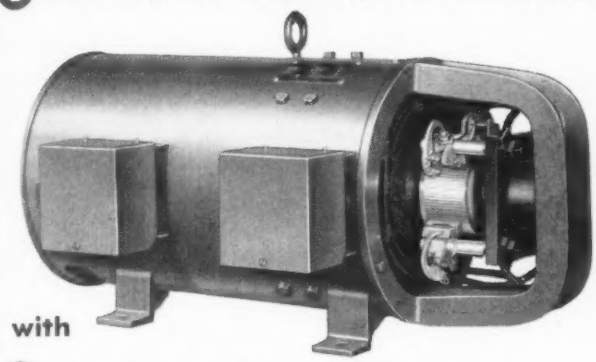
(3) The information operator should acknowledge the request and consult the list of coin station numbers. If the number is not a coin station she should say, "Not a coin station." If the number is a coin station, she should pass the report, saying for example, "1234 is a postpay (or prepay)" indicating the type of coin station.

(4) The information operator should give the call her undivided attention. All restrictions on scope of search should be suspended, and all possibilities should be exhausted before giving a "no telephone" report. The information operator should be as helpful as possible with suggested alternates.

(5) If the information operator is in doubt as to whether a call for the police or fire department, a doctor or a hospital, is an emergency, she should question the customer and proceed accordingly.

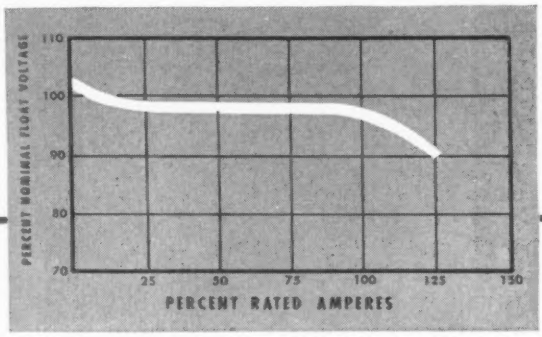
FOR *Time-Proved* *Specify* BATTERY-CHARGING PERFORMANCE

1 E. P. Diverter-Pole Motor-Generators



with

2 Inherent Constant Voltage . . .



Constant voltage delivered by E. P. Diverter-Pole Motor-Generators serves three important functions:

A—DECREASES RELAY MAINTENANCE. Keeping the voltage from rising too high helps to prevent "slapping" of the contacts that may result in misalignment, pitting and burning, and preserves the sensitive adjustment of the relays. High-coil current . . . with accompanying insulation breakdown, shorting and burning-out . . . is avoided.

B—INCREASES BATTERY LIFE. Operating records of many exchanges show that the E.P. Diverter-Pole Battery Charger increases battery life from six to fourteen years. High battery temperature, excessive gassing, and undue breaking down of the active cell material are prevented to assure the longest possible battery life.

C—IMPROVES VOICE TRANSMISSION. To assure satisfactory voice transmission, the Battery Charger must maintain the output voltage of the battery as close as possible to a constant value. Transmitters may become noisy if they are subjected to an excessively high voltage, and may have to be replaced because of permanent damage.

Write for Bulletin 209

EP

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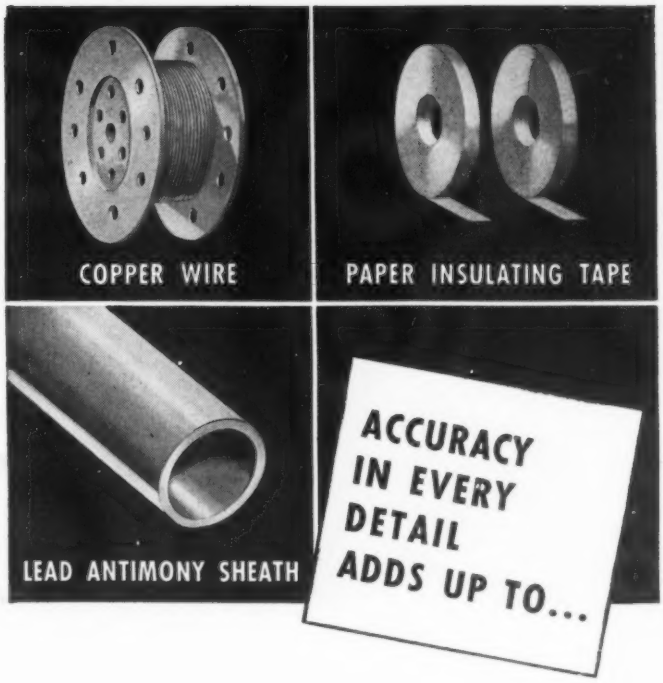

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For information on Kennecott Telephone Cable, call any of the Chase Brass Sales Offices listed below.

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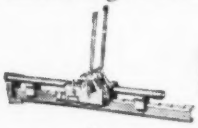
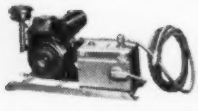
Installing pipe underground is quick and simple this way. With a GREENLEE Hydraulic Pipe Pusher *one man* pushes pipe through the ground—under streets, railways, walks, lawns, floors. Saves time, cuts costs through elimination of extensive ditching as just a short trench accommodates the Pusher. No tearing up of pavement, lawns, floors... eliminates tunneling, back-filling, tamping, repaving. Cuts job time to a fraction. Pusher often pays for itself through timesavings on first job or two.



No. 790 GREENLEE PUSHER For 3/4 to 4-inch pipe. Six speeds—5,600 to 40,000 lbs. pushing pressure.

No. 795 GREENLEE PUSHER For pipe larger than 4-inch, concrete sewer pipe, large drainage ducts. Six speeds—25,000 to 150,000 lbs. pushing pressure.



POWER PUMP For both sizes of GREENLEE Pushers. Pushes pipe at rate of two feet per minute.

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Get facts on timesaving Greenlee tools now. Write Greenlee Tool Co., Division of Greenlee Bros. & Co., 2071 Columbia Avenue, Rockford, Illinois, U. S. A.

Steel Boom for Trucks Aids Overhead Work

A new labor-saving machine designed to reach hard-to-get-at heights has been developed by Capital Industries, Inc., Portland, Ore.

Named the "Industrial Monkey," the machine was originally planned for use by power companies. However, wide applications among all industries which must send workers above ground is foreseen by R. E. McCaughern, head of Capital Industries.

The Industrial Monkey consists of an extendable steel boom mounted on any one and one-half ton or larger truck. On the end of the boom is a rail-protected, automatically self-leveling work platform insulated to protect against 8,000 volts. Sixteen feet long closed, the boom extends to 26 ft. and is mounted on the truck at a point approximately six and one-half feet above the ground. The additional height of the worker enables him to work safely and comfortably at heights up to 40 ft.

Hydraulic in operation, the boom is controlled by the worker on the platform by an arrangement of foot buttons. It may also be operated from the truck cab. Power is obtained from the power take-off of the truck transmission. Maximum speed from horizontal to vertical is approximately 20 seconds and is adjustable.

The boom is rated to carry a 200-pound man at any position with a four to one safety factor. At certain positions it will carry a 1,200 pound load with the same safety factor, the company states.

Preliminary tests of a unit by the Portland General Electric Co. resulted in an initial order of five more units. According to Sam Pearson, superintendent of the PGE outside division,

savings of 40 per cent in tree trimming operations and 50 per cent in street lighting maintenance were gained through use of the machine. A noteworthy feature in tree trimming is the ability to thrust the boom straight up, enabling the worker to get at inaccessible places. Another is the air-line which permits use of power tools from the platform without the awkwardness of hauling hose, according to the company.

The Industrial Monkey permitted the replacing of 140 boulevard lights in a single shift, Pearson reported. He estimated that with normal use the machine should pay for itself in one or two years. Portland General Electric also anticipates savings on mid-span repairs, re-insulation and repainting of station towers.

Other specifications of the machine are as follows: Weight, 2,500 pounds; road clearance, traveling position, 10½ ft.; swing, 270 degree arc around turntable.

The machine is being manufactured by the Harsh Machine Works of Portland.

New Twin-Helix Earth Auger Announced

A new twin-helix auger—known as the Pengo earth auger—made to fit the Highway earth boring machine and for use with all popular makes of power driven earth boring machines by means

of adapters is now in production by Petersen Engineering Co., San Francisco, Calif.

The new augers are manufactured in nine sizes for hole diameters up to 36 ins. The Pengo auger bores holes of diameters specified, avoiding waste of concrete when drilling for tower footings or cast-in-place piles or footings. In addition to drilling ordinary ground, it is claimed that the Pengo auger will bore holes in hardpan, decomposed rock and some kinds of caliche and sandstone. The twin-helix design of the Pengo auger eliminates back thrust against the side of the hole, making it possible to drill with less caving in sandy soil, the company states.

Each half helix is equipped with a shank plate, each of which is provided with replaceable cutting points of abrasion-resistant alloy steel.

Full information may be obtained from Petersen Engineering Co., 4126 26th St., San Francisco.

"All equipped with telephones, minute you catch anything you can call up your friends and start bragging."
Southern Telephone News

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HUBBARD GUY ATTACHMENTS
Hot Galvanized

No. 7584 No. 6001 No. 6004

Hubbard makes a complete line of Guy Hooks and Attachments to meet the great variety of needs and requirements of various operating companies. Included is a range of sizes in light and heavy "regular" guy hooks, crossarm guy loops, and the "closed" type storm guy attachments in steel and malleable iron. All are constructed with rounded wire grooves to give the strand a safe bending radius.

Write for detailed descriptions or call the Hubbard Distributor nearest you.

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Looking for savings in underground duct systems?

1. Save installation costs—Lightweight; long lengths; easy to assemble, saves time and labor.

2. Save cable installation costs—smooth bore permits easy cable pulling—reduces abrasion.

3. Save maintenance costs—Non-metallic; immune to electrolysis—prevents cable corrosion.

4. Save replacement costs—Inorganic; resist acid or alkaline soils; high mechanical strength—permanence.

5. Save fire damage costs—Fireproof because they are asbestos-cement products.

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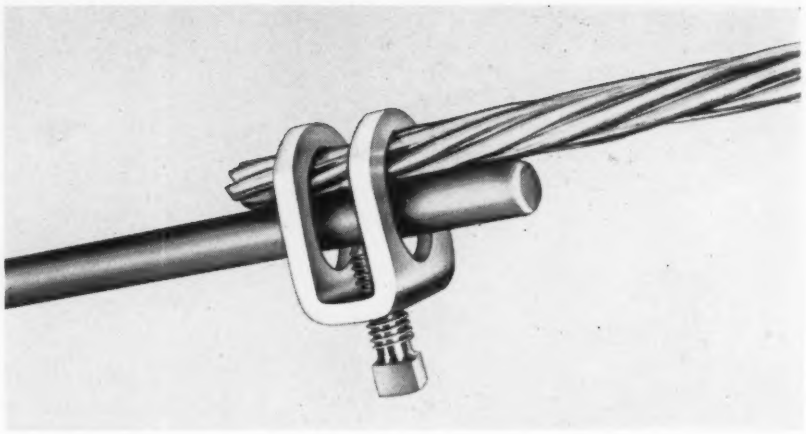

A. B. Chance Company Announces Ground Rod Clamp

A ground rod clamp with a V-shaped slot which clamps tightly to rods and conductors of varying sizes is now being made by the A. B. Chance Co., Centralia, Mo., it was announced recently.

This feature also centers the wire against the ground rod to obtain maximum contact area. The clamp is high strength bronze. Conductor and rod are held securely with an Everdur set screw.

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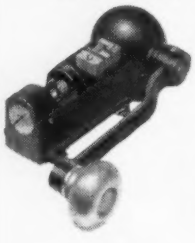
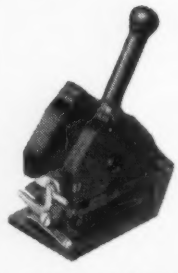


AT PRICES YOU CAN'T AFFORD TO PASS

No. 444A. To crimp eyelet tip and ring cords without removing insulation.
An $80.00 value for $19.95

No. 316. To attach and remove plugs from cords. Adjustable to different types of plugs.
A $60.00 value for $14.95



No. 312B. To cut off old cord end; also severs the braid 1 3/16" from end.
A $35.00 value for $4.95

COMPLETE SET 3 TOOLS FOR $40.50

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End objectionable noise interference due to transient and induced voltages, and provide additional lightning protection in bell circuits, with the Vincent Rare Gas Relay. Compact, non-mechanical, the Vincent Rare Gas Relay is easily inserted in the bell box, or at the ground connection or protector block on compact handsets, in series with each bell. It needs no further maintenance.

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